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Oil, Paint and Drug Reporter

Vol. 100. No. 12 MONDAY, SEPTEMBER 12, 1921 100 William St., New York

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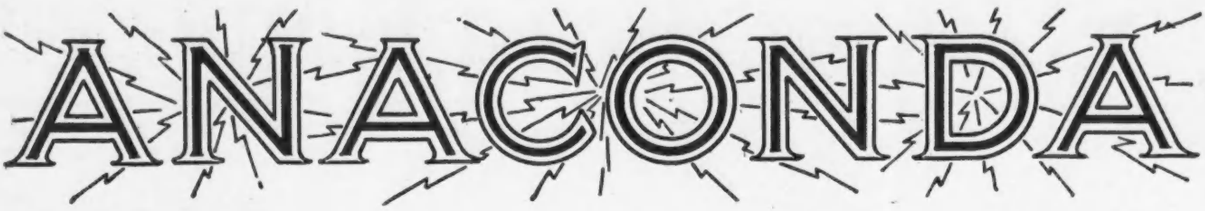

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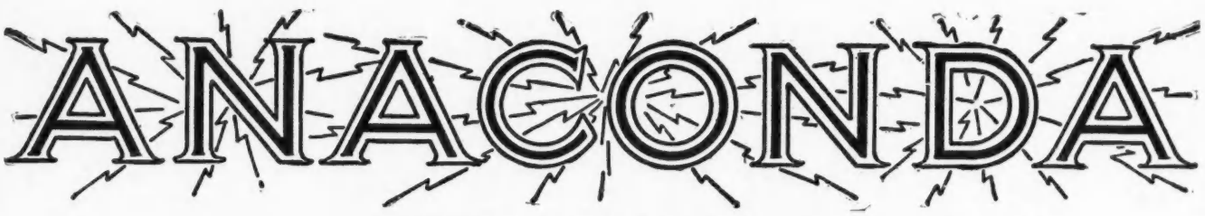

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CHEMICAL EXPOSITION—EXTRA EDITION

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Vol. 100. No. 12 MONDAY, SEPTEMBER 12, 1921 100 William St., New York

OIL, PAINT and DRUG REPORTER
ESTABLISHED 1871.
The following publications are incorporated in the REPORTER:—

DRUG, PAINT AND OIL TRADE
NEW YORK DRUG BULLETIN
NEW YORK DRUGGIST'S PRICE CURRENT
SOAP MAKERS' JOURNAL OIL AND PAINT REVIEW
WEEKLY DRUG NEWS

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QUESTIONABLE OR UNDESIRABLE ADVERTISEMENTS WILL NOT BE ACCEPTED.

Chemistry: the Resultful

When the ancient alchemist pottered, muttering mysteriously in his musty chamber, surrounded with symbolically labeled jars and fantastic mummies of queer animals, his chief purpose was the transmutation of base metals into gold. His failure was due principally to his belief in short cuts. His successor, the chemist of today, can take the crudest substances, mineral, vegetable, or animal, and from them bring forth products for which all nations eagerly proffer their minted yellow metal in unlimited quantity. The alchemist delved for a secret which should be for his benefit alone. The chemist strives to interpret the secrets of the material world in order that mankind at large may be the gainer. He succeeds.

The measure of the chemist's success is in large part unknown even to chemists. It is universally admitted that the wonders of chemistry affect every phase of human endeavor, every period of human life. But even the most exaggerated creation of the author of scientific fiction falls short of the strangeness of chemical achievement. In the walks of peace the chemist is a mainstay of the nation. In the processes of war his is the most destructive, and, too, the most saving, hand. He evolves from the homely, useful coal, gases which wreak destruction wherever loosed. He blends simple salts to produce a wound dressing almost miraculous in its healing. Does he not deserve a nation's honor? Is not his calling worthy to be protected as a vital part of a nation's existence?

Hand in hand with the chemist in his work of such universal benefit goes the engineer, upon whose ingenuity often depends the practical application toward industrial ends, of the discoveries of the one who deals with electrons and catalysts and strange-looking formulas and wierd polysyllabic names. And fellow with both is the maker of the delicate instruments of precision which guide the chemist to exactness in minute quantities, in the influencing factors of heat and moisture, which enable the engineer to build for satisfaction. Fellow, too, is he who turns out more ponderous engines to convert with heat or power crude materials into the peculiar product of the other's skillful laboring.

Ah! They are a group of which a land may well be proud. They are a hard-working, a result-getting group in this land of big opportunity. What is their approval, their recognition? Is this, for them, a negligent land? Perhaps their story has not been properly told. They are busy men with little time for horn-blowing. Thus, then, becomes plain the purpose of the need for the Seventh National Exposition of the Chemical Industries, opening today in this city. The lesson which that exposition has for all none can afford to miss. Are you going?

Informative Extra Editions

This Chemical Exposition extra number of the Oil, Paint and Drug Reporter is designed for the convenience of those who are participating as exhibitors, speakers, officials, or visitors, in the Seventh National Exposition of the Chemical Industries and for the information of its readers who will not be able to attend. It is a complete guide to the exposition, giving the details of the program of addresses and motion pictures, and a directory of the exhibitors with a plan of the exhibition space which facilitates the locating of any display. The descriptions of the various exhibits supply a deal of useful information, not alone for those who will have an opportunity to inspect the displays, but as well for those at home who can learn therefrom much that will be of service in their industrial activities.

This extra number goes to every subscriber for the Reporter without extra charge. It is but one of the numerous extras which contribute to the value received by Reporter subscribers. It is a useful reference book well worth filing as a source of commercial information. The advertisements herein have a timely message for all who are puzzling through these days of industrial restabilization. They deserve careful attention.

Next week, Reporter subscribers will receive—again as a part of Reporter service and without extra cost—a complete and detailed report of the symposiums and other sessions of the exposition, supplemented with photographic views of the exhibition hall and descriptions of the displays. The forthcoming report will be interesting and informative, a useful souvenir of the exposition.

A visit to the Seventh National Exposition of the Chemical Industries is a course in practical education, brief, it is true, but comprehensive in its scope and useful in its results. All who can should avail themselves of this opportunity to secure knowledge of the progress in the many fields where chemistry is so successfully applied. The next best thing to attending the exposition is to read in the extra editions of the Oil, Paint and Drug Reporter about what was shown there and what was said and done.

Paint and Varnish Program

Thursday will be Paint and Varnish Day at the Chemical Exposition—and the program foretells a red-letter occasion. Included in the list of speakers, in addition to Chairman R. S. Perry, are Secretary G. B. Heckel of the Paint Manufacturers Association of the United States, Maximilian Toch, H. A. Gardner and other men of prominence in various branches of the paint and varnish industry.

The afternoon and evening will be devoted to the paint and varnish symposium, the feature of the evening meeting being a presentation of the purposes and activities of the "Save the Surface" campaign by Ernest T. Trigg. Although conditions in the paint and varnish industry have been fairly stabilized, there remains the necessity of planning for the goal, "Make 1922 the Greatest Paint and Varnish Year." Out of the discussions on Paint and Varnish Day should come much that will be helpful, and the greater the number of paint and varnish men who take part in those discussions, the greater will be the benefits derived therefrom. Therefore, should every one who can make a special effort to be there and do his part.

As a part of the paint and varnish symposium there will be shown a number of motion pictures dealing with the manufacture of white lead and various sorts of paint and varnish. It is well recognized that knowledge comes more quickly and more thoroughly through seeing than through hearing, and pictures are more easily seen than printed pages. So, the value of the motion picture portion of the program no doubt will prove especially instructive.

Visit Booth No. 340

While you are attending the chemical exposition, drop in at the booth of the Oil, Paint and Drug Reporter—it is No. 340—and avail yourself of the facilities thereof. If you want information relative to any phase of the industries with which the Reporter deals, or of those within the scope of its associated publications, The Painters Magazine and The Druggists Circular, our representatives in attendance at the booth will be glad to extend all possible service.

Dyestuffs Will Have Their Day

Among chemical industries none other has such a broad general interest at the present time as that which has to do with the manufacture of coloring materials from crude organic bases. Men in every walk of life talk dye chemistry these days—and those who would have America dependent upon Germany for the widely useful synthetic coloring agents are alert in seeing to it that opportunity is given for introducing much that is to the disadvantage of the American dye industry into the discussion in the street. To replace this "Made-in-Germany" talk with facts should be the constant purpose of every one who knows that the American industry can and will make good. The facts exist; they must be circulated.

It is with the purpose of setting forth the facts in the appeal of the American dye industry for protection against ruthless foreign competition that the management of the Seventh National Exposition of the Chemical Industries has set aside Saturday, September 17, as Dyes Day. The program of the exposition schedules a symposium on American dyes and colors to begin at 2 o'clock, Saturday afternoon, with W. P. Cohoe as chairman. Among the subjects to be discussed thereat is the one which looms large among the reasons why Congress has been slow in its recognition of the needs of the American dye industry. That subject is concerned with the alleged existence, or threat, of an American dye monopoly. The testimony of scores of small manufacturers of dyestuffs, given before Congressional committees, is, of itself, sufficient to prove to the unbiased thinker that the protection sought would not endanger the dyemaker with limited capital. The public has not got that testimony. It does not fit in with the predigested "food for thought(?)" to which foreign manufacturers would limit the people of America. So it behooves every believer in the future of American dyes to urge his acquaintances to attend the dyes symposium and learn for themselves the falseness of the pernicious, persistent cry about a "dye trust" "wolf."

Other important phases of the dyestuffs situation will be presented in the symposium by speakers who know what they are talking about. There will also be shown a motion picture depicting in detail the manufacture of dyes in this country.

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Symposiums Scheduled on Paint and Varnish, Save the Surface Dyes, Colors, Ceramics, Power Plants, Crushing, Grinding, Pulverizing, Evaporating and Drying—Motion Pictures Illustrate a Wide Range of Industrial Chemical Operations

MONDAY, September 12

Exposition Opens at 2.00 P. M.

Motion Pictures

(Motion Pictures will be shown in Auditorium)

7:00 P. M.—1. "Iron Mining Operations" (4 reels). Courtesy United States Bureau of Mines.

(a) Stripping, (b) Exploration and Stripping, (c) Underground Mining, (d) Logging Operations.

2. "The Story of Abrasives" (4 reels). Courtesy The Carborundum Co. and United States Bureau of Mines.

(a) Creating Power from Water, (b) Within the Power Plant at Niagara, (c) In and About the City of Niagara Falls, (d) Power at Work in the Carborundum Plant, (e) Making the Crystal Masses in the Electric Furnace, (f) Making Them Into Stones, Grinding Wheels, Paper and Cloth, (g) Unusual and Usual Uses for Abrasives in Some Fifty Industries.

8:00 P. M.—Opening Address, by Charles H. Herty.

"The Importance of Chemical Progress to Our National Defense," Hon. Irvine L. Lenroot, United States Senate.

Address, by General Amos A. Fries, Chief, Chemical Warfare Service, U. S. A.

TUESDAY, September 13

Crushing, Grinding and Pulverizing Symposium

Harry J. Wolf, Chairman

2:30 P. M.—"Ball and Pebble Milling for Pulverizing and Mixing," H. F. Kleinfeldt, Abbe Engineering Co.

"Grinding and Pulverizing With Air Separation," S. B. Kanowitz, Raymond Bros., Impact Pulverizer Co.

"Crushing, Storing and Pulverizing," L. H. Sturtevant, Sturtevant Mill Co.

"Dust Collection as Applied to Grinding and Pulverizing Problems," M. I. Dorfan, Allis-Chalmers Mfg. Co.

"The Development of Compound Grinding Mills," H. Schifflin, Allis-Chalmers Mfg. Co.

"Mechanical Handling of Finely Ground Wet Material," G. W. Repetti (The Dorr Co.).

"The Future Chemical America," J. Merritt Matthews.

Industrial Problems

"Solvent Extraction of Edible Fats and Oils," H. Austin, Ernest Scott & Co.

"Materials; Handling in Industrial Plants," R. H. McLain, General Electric Co.

"Utilization of Industrial Waste: Its Economic Importance," W. H. Dickerson, Industrial Waste Products Co.

Followed by motion pictures upon the subject of "The Handling of Materials," if time permits. See the first four titles upon this evening's program.

Motion Pictures

7:00 P. M.—Showing begins.

1. "Transportation and Storage of Iron Ore" (1 reel). Courtesy United States Bureau of Mines.
2. "The Story of Asbestos" (4 reels). Courtesy United States Bureau of Mines.
3. "Dredging Anthracite Coal" (1 reel). Courtesy United States Bureau of Mines.
4. "Saving Wasted Millions Through Material Handling Equipment" (2 reels). Courtesy Economy Engr. Co.
5. "The Story of Sulphur" (2 reels). Courtesy Texas Gulf Sulphur Co. and United States Bureau of Mines.
6. "Mining and Extraction of Radium from Carnotite Ore" (2 reels). Courtesy United States Bureau of Mines.
7. "du Pont Dyes: Showing Their Manufacture" (2 reels). Courtesy du Pont de Nemours & Co.
8. "Making Soap" (1 reel). Courtesy Baumer Films.
9. "Mine Explosion and Rescue" (1 reel). Courtesy United States Bureau of Mines.

8:00 P. M.—Address, by Hon. Fred S. Purnell, United States House of Representatives.

WEDNESDAY, September 14

Evaporating and Drying Symposium

Wallace Savage, Chairman

2:30 P. M.—"The Recovery of Some Waste Materials Made Possible by Vacuum Drying and Evaporating." E. C. Rippel (Buffalo Foundry & Machine Co.).

"The Relation of Atmospheric Conditions to Chemical Processes," A. E. Stacy, Jr. (Carrier Engineering Corp.).

"Drying and Drying Problems," H. S. Landell (Proctor & Schwartz).

"Special Problems for Enameled Evaporators," Max Donauer (Elyria Enameled Products Co.).

"Shall America Have an Independent Dye Industry?" H. E. Howe.

"Drying With Moist Air," Arthur B. Stonex (Hunter Dry Kiln Co.).

"Drying as an Air Conditioning Problem," A. W. Lissauer (W. L. Fleisher & Co., Inc.).

"Atmospheric Drying by Means of Compartment, Tunnel and Continuous Belt Conveyor Dryers with Some Practical Applications," J. D. Stein (Erinnell Co., Dryer Division).

"Spray Drying," W. H. Dickerson (Industrial Waste Products Co.).

"Evaporation," H. Austin (Ernest Scott & Co.).

"The Criss-Cross Evaporator: Why It Was Designed, What It Is and What It Does," Robert V. Cook (Chemical Equipment Co.).

"Vacuum as Applied to Industry," J. S. Chen (J. P. Devine Co.).

Motion Pictures

7:00 P. M.—Showing begins.

1. "The Manufacture of Dry Sausage" (2 reels). Courtesy Armour & Co.
2. "The Making of Oleomargarine" (1 reel). Courtesy Armour & Co.
3. "The Electric Heart—the Dry Cell" (1 reel). Courtesy Baumer Films.
4. "Canning Electricity—the Wet Cell" (1 reel). Courtesy Baumer Films.
5. "The Manufacture of Pyrex Glassware" (3 reels). Courtesy Corning Glass Co.
6. "The Manufacture of Portland Cement" (2 reels). Courtesy United States Bureau of Mines.
7. "The Manufacture of Dynamite" (1 reel). Courtesy United States Bureau of Mines.
8. "Exterminate the Mosquito" (1 reel). Courtesy United States Bureau of Mines.

"The Marvels of Coal Tar," Ralph H. McKee.

8:00 P. M.—"The Chemical Industries and the Tariff," by Hon. Thomas Walker Page, chairman United States Tariff Commission.

THURSDAY, September 15

Paint and Varnish Day

Paint and Varnish Symposium

2:00 P. M.—"Paint and Varnish Waste Control"—Chairman's Address, by R. S. Perry, Perry & Webster, Incorporated.

"Reflection Factors on Industrial Paints," H. A. Gardner (Institute of Paint & Varnish Research).

"Laboratory Control," L. P. Nemzck (du Pont de Nemours & Co.).

"Rust: Its Cause and Prevention," Maximilian Toch (Toch Brothers).

"Physical Testing of Paints and Paint Materials," Frank G. Beyer, New Jersey Zinc Co.).

"The American Chemical and Dye Industry," Charles H. Herty.

"The Ideal Paint and Varnish Specification," F. P. Ingalls (John W. Maury & Co.).

"Limitations of Standardization of Paint and Varnish Manufacture," D. A. Kohr (Lowe Brothers Co.).

Save the Surface: Paint and Varnish Speakers

7:00 P. M.—"Save the Surface and You Save All with Paint and Varnish," Ernest T. Trigg (Chairman, "Save the Surface" Committee Paint Manufacturers' Association of the United States).

"What Is Paint?" G. B. Heckel (Secretary, Paint Manufacturers' Association of the United States).

"War Patriotism Today," H. G. Byers.

Motion Pictures

1. "Making White Lead" (2 reels). Courtesy Bureau of Commercial Economics and National Lead Co.
2. "Making of Varnish" (1 reel). Courtesy Bureau of Commercial Economics and Murphy Varnish Co.
3. "Making of Paint and Varnish" (2 reels). Courtesy Bureau of Commercial Economics and Sherwin-Williams Co.
4. "Making of Paint" (1 reel). Courtesy Bureau of Commercial Economics and Lowe Bros.
5. "Making of Paint" (1 reel). Courtesy Bureau of Commercial Economics and Mathews & Co.
6. "Making of Varnish" (1 reel). Courtesy of Bureau of Commercial Economics and Taylor, Tregent & Co.

FRIDAY, September 16

American Ceramic Society Meeting

(Officers School Room)

2:00 P. M.—"Business Condition Relating to the Clay-working Industries," John G. Jones.

"The Importance of Chemical Stoneware in the Chemical Industries," P. C. Kingsbury.

"The Passing of King Methane," S. R. Sholes.

"Reducing Manufacturing Costs with Grinding Wheels," Fred B. Jacobs.

"Art Division Research Suggestions," F. H. Rhead.

"Refractories," J. Spotts McDowell.

"Heavy Clay Products Research," M. B. Greenough.

"Porcelain for the Laboratory," Charles F. Binns.

The Power Plant in the Chemical Industries Symposium

R. C. Beadle (Editor "Combustion"), Chairman

2:30 P. M.—"Modern Boiler House Arrangement and Equipment" (Illustrated), R. M. Gordon (The Solvay Process Co.).

"Suggestions for Reducing Heat Losses in Chemical Plants," John Primrose (Power Specialty Co.).

"Boiler Feed Water Treatment and Treatment Control," E. G. Bashore (Rice & Bashore).

"Compressed Air Installation in Industrial Plants," A. R. Stevenson, Jr. (General Electric Co.).

"The Master Key Industry," Charles L. Parsons.

"The Application of Electric Power in Chemical Industry," D. B. Rushmore, J. A. Seede and E. Pragst (General Electric Co.).

"The Limitation of Silent Chain Drive," F. G. Anderson (Morse Chain Co.).

"A New Method for Coking Coal as Required for Industrial Fuel," D. S. Chamberlin (Distillation Industries, Inc.).

"The Application of Pulverized Fuel," H. D. Savage (Combustion Engineering Co.).

"The Prevention of Internal Corrosion in Pipes, Tanks and Other Iron and Steel Equipment," Perry West (Anti-Corrosion Engineering Co.).

"Pulverized Coal in the Power Plant," H. G. Barnhurst (Fuller Engineering Co.).

Followed by Motion Pictures upon "The Power Plant," if time permits. See the first four titles upon this evening's program.

Motion Pictures

7:00 P. M.—

1. "The Cost of Careless Firing" (2 reels). Courtesy United States Bureau of Mines.
2. "Getting the Most Out of Coal" (1 reel). Courtesy United States Bureau of Mines.
3. "Conserving Coal and Saving Heat Values by Insulating Steam Pipes and Boilers" (1 reel). Courtesy Magnesia Association of America.
4. "Modern By-Product Coking" (2 reels). Courtesy The Koppers.
5. "The Story of Rock Drilling" (4 reels). Courtesy Sullivan Machinery Co. and United States Bureau of Mines.
6. "The Story of Armco Ingot Iron" (3 reels). Courtesy American Rolling Mill Co.
7. "The Manufacture of Pyrex Glassware" (3 reels). Courtesy Corning Glass Co.
8. "The Manufacture of Portland Cement" (2 reels). Courtesy United States Bureau of Mines.
9. "The Manufacture of Hollow Building Tile" (2 reels). Courtesy American Ceramic Society.

"Dyes and Coal Tar," Chas. Baskerville Co.

SATURDAY, September 17

American Dyes and Colors Symposium

W. P. Cohoe, Chairman.

2:00 P. M.—"Making American Dyes," (Du Pont Pictures described by a speaker).

"Is There an American Dye Monopoly?" F. E. Breithut.

"Making a Better America," Charles T. Baylis.

"Do We Want a Complete American Chemical Industry?" Williams Haynes.

"The Psychology of Color in the Motion Picture Theatre," S. L. Rothafel.

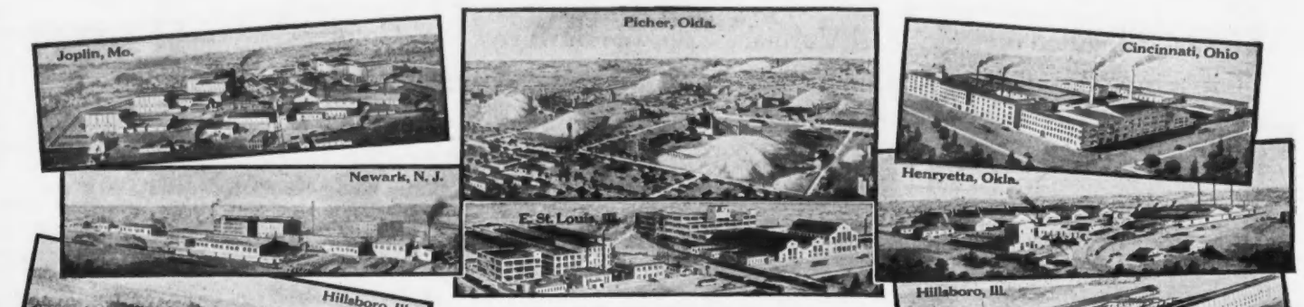
Motion Pictures

7:00 P. M.—

1. "Manufacture of Newsprint Paper" (5 reels). Courtesy Spanish River Pulp & Paper Mills.
2. "Making Du Pont Dyes" (2 reels). Courtesy Du Pont de Nemours Co.
3. "Extraction of Alsatian Potash Salts and Refining Potassium Chloride" (2 reels). Courtesy Societe Commerciale des Potasses d'Alsace.
4. "Manufacture of Dynamite" (1 reel). Courtesy United States Bureau of Mines.
5. "Mining Magnetic Iron Ore" (2 reels). Courtesy United States Bureau of Mines.

Alphabetical List of Exhibitors

Space.	Name and Address.
	A
436	Abbe Engineering Co., New York city.
106	Abbe, Paul O., Inc., New York city.
143	Abernethy, John F., Brooklyn, N. Y.
136	Acid Proof Clay Products Co., Akron, Ohio.
67	Ainsworth & Sons, William, Denver, Colorado.
200	Alberene Stone Co., New York city.
128-229	Allis-Chalmers Mfg. Co., New York city.
737	American Chemical Co., New York city.
434	American Cyanamid Co., New York city.
231	American La France Fire Engine Co., Elmira, N. Y.
929	American Metal Products Co., Milwaukee, Wis.
742-744	American Steam Pump Co., Battle Creek, Mich.
146-148	American Steel & Wire Co., New York city.
624	Angel H. Reeve & Co., New York city.
204	Anti-Hydro Waterproofing Co., New York city.
201	Apex Chemical Co., New York city.
540	Arkell Safety Bag Co., New York city.
626	Armstrong Cork & Insulation Co., Pittsburgh, Pa.
517	Arnold, Hoffman & Co., Inc., New York city.
908	Atlas Electric Devices Co., Chicago, Ill.
	B
734	Bachmeier & Co., Inc., New York city.
236-238	Bailey Meter Co., Cleveland, Ohio.
743	Baker & Co., Inc., Newark, N. J.
623	Baker, J. T., Chemical Co., Phillipsburg, N. J.
827	Baker's, Joseph, Sons & Perkins Co., Inc., New York city.
509	Barber Asphalt Paving Co., Philadelphia, Pa.
417-419	Barrett Co., The, New York city.
750	Bausch & Lomb Optical Co., Rochester, N. Y.
537	Beach-Russ Co., New York city.
740	Becker, Christian, Inc., New York city.
56	Beckley Perforating Co., Garwood, N. J.
207	Bethlehem Foundry & Machine Co., Bethlehem, Pa.
628	Blackmer Rotary Pump Co., New York city.
15	Blackiston's, P., & Co., Philadelphia, Pa.
530	Boyers, Kienle Co., Inc., New York city.
351	Bristol Co., Waterbury, Conn.
747	Brown, A. & F., Co., New York city.
431	Buckman & Pritchard, Inc., New York city.
848	Burrell Technical Supply Co., Pittsburgh, Pa.
	C
442-444-446	Canadian Pacific Railway Co Montreal, Que.
326-328	Carborundum Co., Niagara Falls, N. Y.
805	Celite Products Co., New York city.
327-329	Calco Chemical Co., Bound Brook, N. J.



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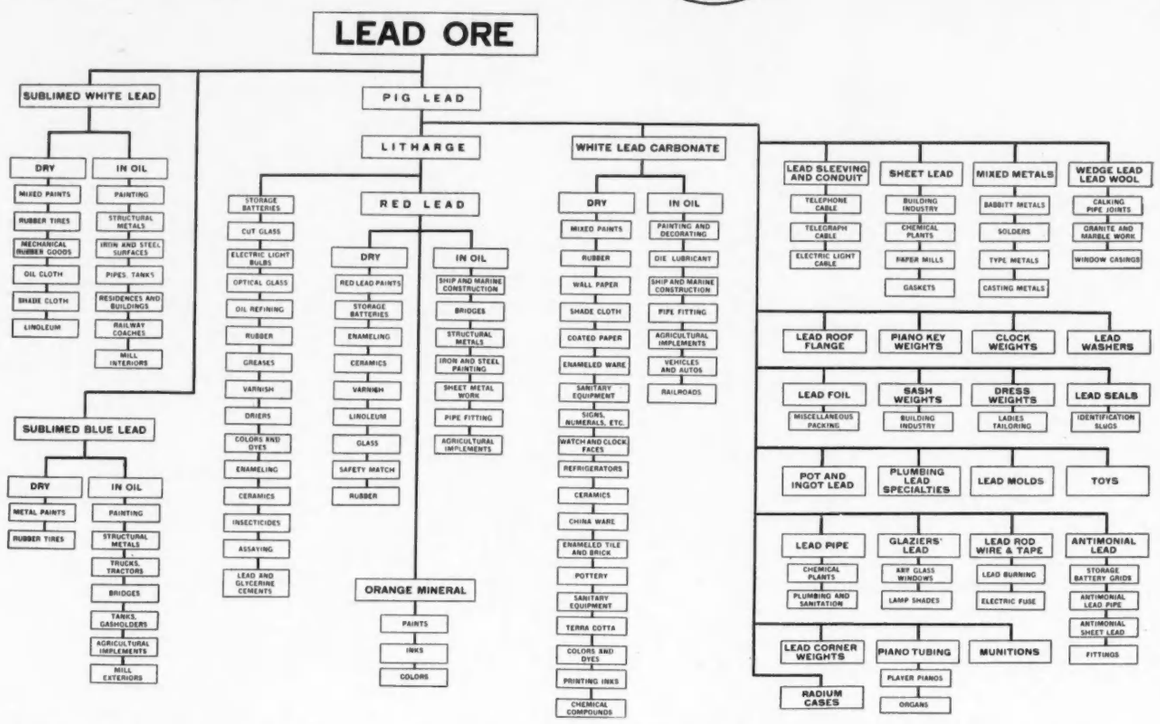

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735 Central Scientific Co., Chicago, Ill.
636 Chemical Catalogue Co., Inc., New York city.
425 Chemical Equipment Co., Chicago, Ill.
513-515 Chiris, Antoine, Co., New York, N. Y.
544-546 Cleveland-Cliffs Iron Co., Cleveland, Ohio.
149 Clipper Belt Lacing Co., Grand Rapids, Mich.
831 Colton, Arthur, Co., Detroit, Mich.
826 Combustion, New York city.
330 Commercial Solvents Corpn., New York city.
609 Contact Process Co., Buffalo, N. Y.
746 Container Club, The, Chicago, Ill.
533 Coors Porcelain Co., Golden, Colo.
535 Corning Glass Works, Corning, N. Y.
335 Crane Co., Chicago, Ill.
68 Crane Packing Co., Chicago, Ill.

D

138-140 Davidson Chemical Co., The, Baltimore, Md.
503 Davidson, M. T., & Co., New York city.
608-610 DeLaval Separator Co., New York city.
609 Detroit Chemical Works, Detroit, Mich.
318 Detroit Range Boiler & Steel Barrel Co., Detroit, Mich.
114-118 Devine Co., J. P., Buffalo, N. Y.
731 Diamond State Fibre Co., Bridgeport, Pa.
312 Dings Magnetic Separator Co., Milwaukee, Wis.
443 Dominion Bureau of Statistics, Ottawa, Canada.
445-447 Dominion Water Power & Forestry Branches, Dept. of the Interior, Ottawa, Canada.
214-218 Dorr Co., The, New York city.
602 Dow Chemical Co., Midland, Mich.
811-813 Drying Systems, Inc., Chicago, Ill.
500-502-504-601-603-605 Du Pont de Nemours Co., Inc., E. I., Wilmington, Del.
249-251 Duriron Co., The, Dayton, Ohio.

E

409-411 Eagle-Picher Lead Co., Chicago, Ill.
701 Economy Engineering Co., Chicago, Ill.
539-541 Egyptian Lacquer Mfg. Co., New York city.
634 Eimer & Amend, New York city.
408 Electro Bleaching Gas Co., New York city.
514-516 Elmore, G. H., Philadelphia, Pa.
407 Elyria Enameled Products Co., Elyria, Ohio.
702 Engelhard, Charles, Inc., New York city.
525 Everlasting Valve Co., Jersey City, N. J.

F

130-132 Fleischer, W. L., & Co., New York city.
59 Florasynth Laboratories, New York city.
309 Foxboro Co., Foxboro, Mass.

G

50-51 General Bakelite Co., New York city.
233-235 General Ceramics Co., New York city.
421-423 General Chemical Co., New York city.
211-213-215 General Electric Co., Schenectady, N. Y.
315 General Filtration Co., Inc., Rochester, N. Y.
206-208 Glamorgan Pipe & Foundry Co., Lynchburg, Va.
302 Glens Falls Machine Works, Glens Falls, N. Y.

H

55 Hanovia Chemical Co., Newark, N. J.
518 Hardings Co., New York, N. Y.
313 Hauser-Standard Tank Co., Cincinnati, Ohio.
413-415 Heyden Chemical Co. of America, Inc., New York city.
526-528 Hooker Electrochemical Co., New York city.
16 Howes Publishing Co., New York city.
725-726 Huff Electrostatic Separator Co., Arlington, Mass.
812 Hunter Dry Kiln Co., Indianapolis, Ind.
510 Huyck, F. C., & Sons, Albany, N. Y.
108 Huyette, Paul B., & Co., Inc., Philadelphia, Pa.

I

234 Industrial Filtration Corp., New York city.
604 Innis, Speiden & Co., Inc., New York city.
724-726 International Carbon Products, New York city.
342-344 International Nickel Co., New York city.
538 International Salt Co., New York city.
806 Irving Iron Works, Long Island City.

J

333 Jewell Polar Co., Chicago, Ill.

Space. Name and Address.

K

827 Kellogg, M. W., Co., Inc., New York city.
735 Kewaunee Mfg. Co., Kewaunee, Wis.
833 Kiefer, Karl, Machinery Co., Cincinnati, Ohio.
721 Knight, Maurice A., East Akron, Ohio.
348-350 Koppers Co., The, Pittsburgh, Pa.

L

550 Lakewood Engineering Co., Cleveland, Ohio.
316 Lead Lined Iron Pipe Co., Wakefield, Mass.
337 Leeds & Northrup Co., Philadelphia, Pa.
532 Liberty By-Products Works, Inc., Hawthorne, N. J.
906 Liquid Carbonic Co., Chicago, Ill.
606 Lunkenheimer Co., Cincinnati, Ohio.
17-18 Luzerne Rubber Co., Trenton, N. J.

M

650 Maag & Waldstein Co., New York city.
301 Magnesia Association of America, Philadelphia, Pa.
733 Manhattan Rubber Mfg. Co., Passaic, N. J.
736 Mathieson Alkali Works, Inc., New York city.
106 Mead & Co., Detroit, Mich.
600 Merck & Co., New York city.
519 Merrill Co., The, San Francisco, Calif.
542 Metals Disintegrating Co., New York city.
848 Mine Safety Appliance Co., Pittsburgh, Pa.
749 Miner, Edgar, Co., New York city.
933 Mojonnier Bros. Co., Chicago, Ill.
4-5 Monarch Manufacturing Co., Philadelphia, Pa.
227 Mono Corporation of America, Coal and Iron Exchange, Buffalo, N. Y.
630 Morse Chain Co., New York city.
506 Mott, J. L., Iron Works, New York city.
607 Multi-Metal Co., New York city.

N

219 Nash Engineering Co., South Norwalk, Conn.
922 Nassau Valve & Pump Corp., Rockville Center, N. Y.
412-414-416-418 National Aniline & Chemical Co., Inc., New York city.
847-849 National Binding Machine Co., New York city.
66 National Filter Cloth & Weaving Co., Brooklyn, N. Y.
23-24 National Gum & Mica Co., New York city.
745 National Lime Association, Washington, D. C.
810 National Rosin Oil & Size Co., New York city.
521 New Jersey Zinc Co., New York city.
706-708-710 Newport Chemical Works, Passaic, N. J.
802 New York Continental Jewell Filtration Co., Nutley, N. J.
410 Niagara Alkali Co., New York city.
402 Nichols Copper Co., New York city.
517 Nitrogen Corp., The, Providence, R. I.

O

524 Obermayer S., Co., Chicago, Ill.
340 Oil, Paint & Drug Reporter, New York city.
321 Oliver Continuous Filter Co., New York city.

P

228 Palo Co., New York city.
147 Paper Mill & Wood Pump News, New York city.
536 Parks Cramer Co., Fitchburg, Mass.
715 Pennsylvania Salt Mfg. Co., Philadelphia, Pa.
325 Permutit Co., New York city.
61 Perry & Webster, Inc., New York city.
719 Pfaudler Co., Rochester, N. Y.
237 Philadelphia Drying Machinery Co., Philadelphia, Pa.
703 Philadelphia Quartz Co., Philadelphia, Pa.
54 Pittsburgh-Des Moines Steel Co., Pittsburgh, Pa.
230-232 Pneumercator Co., New York city.
705 Power Specialty Co., New York city.
512 Powhatan Mining Co., Baltimore, Md.
134 Precision Instrument Co., Newark, N. J.
220-224-226 Proctor & Schwartz, Inc., Philadelphia, Pa.
537 Provost Engineering Corp., New York city.
58 Pyrolectric Instrument Co., Trenton, N. J.

Space. Name and Address.

Q

620 Quigley Furnace Specialties Co., New York city.

R

320-322-324 Raritan Copper Works, Perth Amboy, N. J.
534 Raymond Bros., Impact. Pulv. Co., Chicago, Ill.
210 Refinite Co., Omaha, Neb.
204 Rhodia Chemical Co., New York city.
400-501 Roessler-Hasslacher Chemical Co., New York city.
69 Ruggles Coles Engr. Co., New York city.

S

835 Salmon Falls Mfg. Co., Boston, Mass.
332 Sarco Co., New York city.
814 Schwartz Sectional System, Indianapolis, Ind.
635 Schaeffer & Budenberg Mfg. Co., Brooklyn, N. Y.
735 Scientific Equipment Co., New York city.
304 Scott, Ernest, & Co., Fall River, Mass.
424 Semet-Solvay Co., Syracuse, N. Y.
433 Seydell Mfg. Co., Jersey City, N. J.
10 Seymour & Peck Co., Chicago, Ill.
406 Sharples Specialty Co., West Chester, Pa.
336-338 Sherwin-Williams Co., The, Cleveland, Ohio.
842-844-846 Shriver T., & Co., Harrison, N. J.
700 Sly, W. W., Mfg. Co., Cleveland, Ohio.
903-905 Snyderfiba Corp., Newark, N. J.
639 Southern Cotton Oil Co., New York city.
649-651 Southern Railway System, Washington, D. C.
334 Sowers Mfg. Co., Buffalo, N. Y.
638 Starr Corrugated Box Co., Inc., New York city.
404 Stein, Hall & Co., Inc., New York city.
618 Stimpson Equipment Co., Salt Lake City, Utah.
921 Stuart & Peterson Co., Burlington, N. J.
730-732 Sturtevant Mill Co., Boston, Mass.
629 Sullivan Machinery Co., Chicago, Ill.

T

531 Tagliabue, C. G., Mfg. Co., Brooklyn, N. Y.
508 Takamine Laboratory, Inc., New York city.
507 Taylor Instrument Companies, Rochester, N. Y.
307 Texas Gulf Sulphur Co., New York city.
64 Textile Colorist, Philadelphia, Pa.
834 Textile World, New York city.
615 Thermo Electric Inst. Co., Newark, N. J.
306 Thermal Syndicate, Ltd., New York city.
910 Thwing Instrument Co., Philadelphia, P.
428-430-432 Tolhurst Machine Works, Troy, N. Y.
543-545 Tyler, W. S., & Co., Cleveland, Ohio.

U

60 Uehling Instrument Co., New York city.
739-741 Union Steam Pump Co., Battle Creek, Mich.
614 Union Sulphur Co., New York city.
120 United Filters Co., New York city.
314 United Lead Co., New York city.
310 U. S. Cast Iron Pipe & Foundry Co., Philadelphia, Pa.
520-522 U. S. Industrial Alcohol Co., New York city.

V

25-26 Van Nostrand Co., D., New York city.
622 Vitreous Enameling Co., Cleveland, Ohio.
804 Voland & Sons, Inc., New Rochelle, N. Y.

W

53 Wailes-Dove Hermiston Co., New York city.
202-303 Wallace & Tiernan Co., New York city.
801 Westinghouse Electro & Manufacturing Co., Pittsburgh, Pa.
225 Wheeler Mfg. Co., C. H., Philadelphia, Pa.
547-549 Wheeler Condenser & Engineering Co., Carteret, N. J.
704 Whitall Tatum Co., New York city.
6-7 Whitlock Coil Pipe Co., Hartford, Co.
19-20 Willson Goggles, Inc., Reading, Pa.
828-830-832 Wolf & Co., Jacques, Passaic, N. J.

Y

815 Young Bros. Co., Detroit, Mich.

CHEMICAL SCIENCE INCREASES PRODUCTION

Cornell Professor Describes "Catalysis, the New Economic Factor," Before International Meeting of Chemists—Sees Not Even Theoretical Limitation of Results

How industrial production can be increased by the use of powerful chemical agents was described last week by Prof. Wilder D. Bancroft, of Cornell University, before the joint international meeting of the Society of Chemical Industry of Great Britain and the American Chemical Society at Columbia University. The subject of Dr. Bancroft's address was "Catalysis, the New Economic Factor." He spoke in part as follows:—

"So far as I can see, the best hope for a speedy return of general prosperity lies in the intensive development of chemistry. The chemists must develop methods of increasing the production and decreasing costs. The most promising way of doing this is by a better utilization of the possibilities of catalytic action. As you know, a catalytic agent is one that in some way speeds up a reaction without necessarily being changed itself. Speeding up a reaction means increased output in the same time and perhaps the possibility of using a cheaper raw material.

"We do not know as yet how a catalytic agent acts. In fact, Mr. Baskerville pointed out years ago that we might consider life as a catalytic agent, because it promotes the chemical reactions involved in growth and subsistence which keeps the human machine running, because it is very mysterious and because it ceases to function in presence of poisons—all striking characteristics of catalytic agents. Be that as it may, catalytic action plays an important part now in our chemical processes and destined to play a much greater one.

"The use of a mercury salt in the synthesis of indigo and of platinum in the contact sulphuric acid process are the classical instances of catalysis in technical processes, but they are only two out of many. We could not make sulphuric acid by the chamber process if it were not for the catalytic action of the oxides of nitrogen. The hardening of oils by hydrogenation has been a technical process for some years and has enabled us to prepare edible oils from raw material which was otherwise quite worthless for that purpose. The use of accelerators in the vulcanization of rubber has reduced the time needed for this process and has increased the output. All the processes for making synthetic rubber involve catalytic agents. The catalytic synthesis of ammonia and the catalytic oxidation of it to nitric acid were two German processes which enabled Germany to keep going in spite of being cut off from the supplies of Chilean saltpeter by the Allies' control of the seas. During the war charcoal and kaolin were used as catalytic agents in the production of phosgene and mustard gas respectively, while catalytic agents played an important part in the manufacture of other war gases.

"The organic chemist is only just beginning to use catalytic agents with zest, and we may expect at any time to hear of improved methods of manufacture such as the recent synthesis of maleic acid from benzene. The problem of a future supply of motor fuel is a very serious one. One of the preceding speakers, Mr. Little, believes that the solution lies in the hydrogenation of coal. Others think that a better yield of alcohol by fermentation will solve the problem. Still others hope to prepare some different combustible liquid from tropical vegetation and from cornstalks. I do not know which is the right solution or whether these three and still other methods will contribute in maintaining an adequate supply of motor fuel, but all that have been suggested require the use of catalytic agents.

Light Without Heat

"If we could produce what is popularly known as cold light, equaling the firefly without adopting his methods, that would make possible an enormous decrease in the power necessary for lighting purposes. Cold light will come some day, and we know enough now to predict that we shall make use of a catalytic agent to speed up the reaction which gives rise to the light. If we could cause the rain clouds which now pass tantalizingly over many of the arid regions to precipitate we could increase the fertility and consequently the value of these lands to an unbelievable extent. This is not 'rainmaking' in the popular sense, but is a matter which is quite within the limits of accomplishment.

Theory Is No Limit

"I have, of course, kept one of the very interesting theoretical points for the last. Sabatier in France has opened our eyes to the extraordinary possibilities which catalytic agents have in helping us to make organic compounds. J. J. Thomson in England has proved that catalytic agents may displace equilibrium, contrary to what has been believed as dogma by Ostwald and his school in Germany. Reid of the Johns Hopkins University has apparently furnished the missing experimental proof. He passed a mixture of the vapors of ethyl alcohol and acetic acid for twenty-four hours over silica gel as catalytic agent, and during the whole of that time he obtained about 10 per cent. more of ethyl acetate than corresponds to the theoretical equilibrium. These experiments have not yet been repeated by anybody else, and there is always the possibility of an unsuspected error. The results seem to me theoretically possible, and I should like to have you consider what they mean in case they are confirmed. Of course, nobody cares about an increased yield of ethyl acetates; but think what a displacement of 10 per cent. in the right direction would mean in the synthesis of ammonia, to take a single instance! It would revolutionize everything. Such a thing may not be possible, but it looks as though this was a legitimate scientific dream today, and the legitimate scientific dreams of today are the successful technical processes of tomorrow.

"In a recent report I expressed my belief that the formation of the National Research Council had put the scientific leadership in this country in the hands of the chemists. Nobody denies that the recent war was a chemists' war. I say to this audeince that the world has a right to look to the chemists for even more help in the time of peace. We need not fail, and we must not."

Maurice A. Knight

Guaranteed Acid Proof

MAURICE A. KNIGHT ACID PROOF CHEMICAL STONEWARE AKRON, OHIO, U.S.A.

East Akron, Ohio

Chemical Stoneware

FIGURE 185

FLANGED RIM KETTLE, 25 GALLON

Made in any size from 5 to 100 gallons capacity. Used with sand, water or oil bath for heating.

FIGURE 142

ACID PROOF PIER INSULATORS

Used with electrolytic chlorine cells as an insulator and protection to piers under cells. Made square and circular.

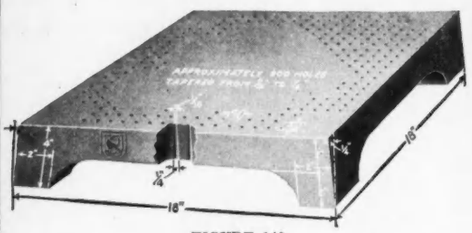

FIGURE 140

ACID PROOF DRAINER OR BLOW PIT TILE

Made in four standard sizes:

18 in. x 18 in. x 4 in. (shown above)
12 in. x 18 in. x 4 in.
12 in. x 12 in. x 3 in.
12 in. x 6 in. x 3 in.

Also used as filter tile for large tank filters—made flat without corner lugs.

THE KNIGHT LINE

The Knight line of Chemical Stoneware includes every description of Chemical and Acid-Proof Stoneware Apparatus, either standard or special. Whatever is your need in this direction we can supply it—with the **Stoneware that is vitrified all through.**

FIGURE 323

ACID PROOF JUG

Made in any capacity from one pint up to 10 gallons. Can be furnished with ground acid proof plug or cork. We also make Mercury Jugs for 1 to 10 pounds. Made heavy and durable.

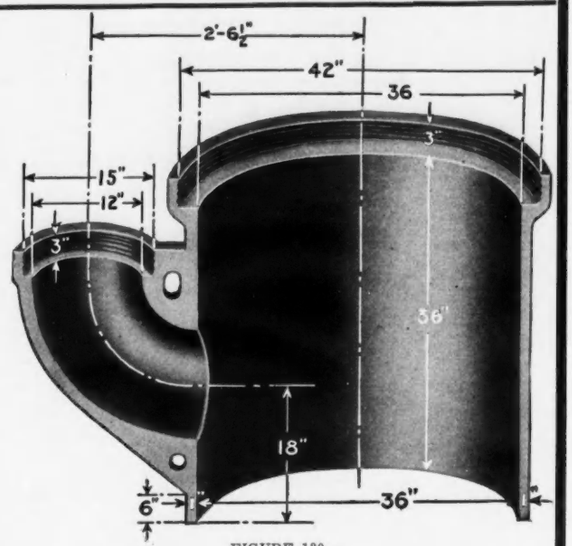

FIGURE 120

STANDARD 36 IN. TOWER BOTTOM SECTION

with 90 deg.—12 in. Gas inlet. Used with Cascade or Saucer bottom. Same design used in other size towers. Can also be used as top tower section, and gas outlet.

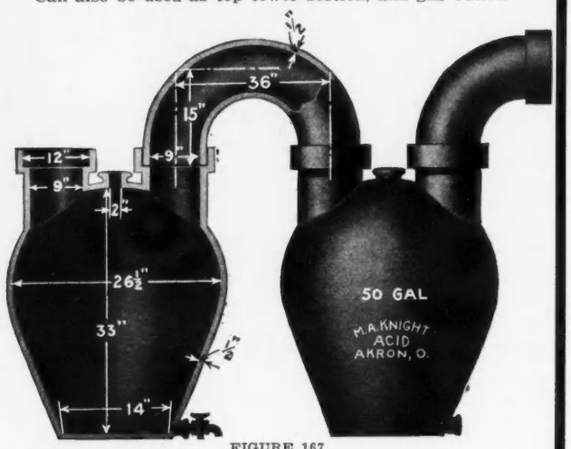

FIGURE 167

STANDARD 50 GAL. WOULFF JUG OR RECEIVER

with connecting "U" Bend. Made in any size from 10 to 200 gallon capacity.

Not Brittle and Fragile Like Glass, But Strong and Tough Like Granite

Our ware is NOT the cheapest nor is it fancy, but it is GUARANTEED to be acid proof, free from defects, not to leak or sweat and to be perfectly satisfactory in every respect.

As we now have quite a representative stock of materials on hand we can probably take care of your requirements promptly.

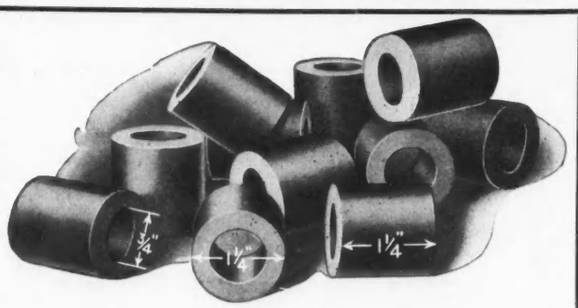

FIGURE 134

SMALL TUBE TOWER PACKING

Used at top of towers over larger packing such as BRICK and RINGS to give better distribution of liquor over tower. Also as entire fill for small bore towers. Carried in stock.

The FIRST cost is a very small item when you consider the great loss caused by shutdowns in a system on account of leaky or defective stoneware.

On account of reductions in labor, raw materials and overhead costs, our prices are now back to a pre-war basis.

Why Not Adopt An Acid Proof Stoneware With a Body Adapted to Your Situation?

You are cordially invited to visit our exhibit at Space 721, at the Seventh National Exposition of Chemical Industries, 8th Coast Artillery Armory, New York, week of September 12th, 1921, where we will have a representative exhibit of our chemical stoneware. Ask for a copy of our fully illustrated folder. It contains information of interest on the subject of acid proof chemical stoneware.

COMPLETE LIST OF EXHIBITORS WITH IDENTITY NUMBER OF BOOTHS.

By Reference to the Diagram Printed on Page xi the Location of Any Exhibit Can Readily Be Found

A

Abbe Engineering Co., New York City, Booth 436

exhibits patented pebble mills, rotary cutters, ball mills, tube mills, filter presses, mixers, vacuum pumps, pressure blowers, laboratory pulverizing mills and acid pumps. The display will be in charge of H. F. Kleinfeldt.

Paul O. Abbe, Inc., New York City, Booth 106

exhibits crushing, grinding, pulverizing, mixing, cutting and sifting machinery. Henry Sellman, consulting engineer, and John Buckley, sales engineer, will describe the exhibit to the trade.

John F. Abernethy, Brooklyn, N. Y., Booth 143

shows chemical equipment made of lead and lead burning. Also samples of their products such as lead lined tanks, lead coils, lead acid containers and jugs and other chemical equipment made of lead. The exhibit will be in charge of John F. Abernethy, assisted by John F. Kiernan and J. J. Cooney .

Acid Proof Clay Products Co., Akron, Ohio, Booth 136

displays acid proof chemical stoneware equipment of various kinds including storage vessels, tower pipe and condensation equipment, straight side pots, faucets, etc. J. E. Cooper will meet the trade, assisted by N. E. Hansen.

William Ainsworth & Sons, Denver, Colorado, Booth 67

have on exhibition laboratory balances and weights of precision including improved balances with keyboard weight carrier and with Vernier rider carrier; one-piece platinum and gold plated analytical weights. Robert G. Ainsworth will represent the company.

Alberene Stone Co., New York City, Booth 200

The exhibit of the Alberene Stone Co. consists of standard equipment for research and educational laboratories. All of the fixtures are typical of the work which has been installed by the Alberene Stone Co. in control and research laboratories for industrial plants and in the laboratories of educational institutions, hospitals and the U. S. Government bureaus and departments. Among the fixtures in the exhibit will be found a complete Alberene stone chemical hood, sink, drain board and peg board of Alberene stone and Alberene stone strainer and overflow; Alberene stone table tops for work benches, gutters and reagent shelves. Special photographic tank and blocks for furnace linings of Alberene stone are also to be seen. A. Y. Meeker has charge of the exhibit assisted by W. K. Fields, F. E. Healy, E. L. Collins, Wesley Heins, R. G. Grothe and N. N. Moneypenny, Jr.

Allis-Chalmers Mfg. Co., New York City, Booths 128 and 229

display operating model Allis-Chalmers dust collector, pulverator, motor driven bronze pump, rubber lined pump and other equipment together with photographs of Allis-Chalmers products and installations. A. F. Rolf, manager of the New York office, will be in charge, assisted by his staff.

American Chemical Society, New York City, Booth 737

has its headquarters here as a meeting place for members and their guests, particularly their foreign guests.

American Cyanamid Co., New York City, Booth 434

present cyanamid products made from atmospheric nitrogen by the cyanamid process. Models are shown of the principal apparatus used in the manufacture of air nitrogen products and samples of raw material, intermediate and finished products. L. J. Franke is in charge of the exhibit with R. R. Stewart, A. E. Downes, Frank S. Washburn, Jr., and Grant Thorne.

American La France Fire Engine Co., Inc., Elmira, N. Y., Booth 231

shows safety devices for the protection of workmen in factories, mills, plants, cold storage houses and fire appliances for use in industrial plants and fire departments. A feature of the exhibit is a waterproof gas tight electric lantern operated by two ordinary No. 6 dry cells; a special hook handle permits the hanging of this light anywhere. A. B. Crossman and James W. Knoblack have charge.

American Metal Products Co., Milwaukee, Wis., Booth 929

shows a line of acid resisting valves, fittings and castings. "Ampco" metal is a copper-steel-aluminum alloy of exceptional merit. Robert W. Hunt & Co. in a test report "the loss from corrosion is inappreciable and may be regarded as no corrosion loss at all." A line of chemical companies' valves specially designed also will be exhibited.

American Steam Pump Co., Battle Creek, Mich., Booths 742 and 744

exhibits steam pumps, centrifugal pumps, vacuum pumps and air compressors, including three units in operation. T. E. Morford is in charge, aided by R. R. Hicks, E. H. Davis and William Oakley.

American Steel & Wire Co., New York City, Booths 146 and 148

shows various commercial forms of sulphate of iron and products manufactured through the use of sulphate of iron. C. Arthur Brown, chief engineer; H. S. Lockwood and Arthur S. Lutz, sales agents, are at the exhibit.

H. Reeve Angel & Co., New York City, Booth 624

has filter papers and filtering materials, including glass wool, filtermass, etc. Features of the exhibit are Whatman filter papers, Angel filter papers made in the United States. E. S. Proper is in charge, aided by Ernest Child and T. L. Harrocks.

Anti-Hydro Waterproofing Co., New York City, Booth 204

exhibits Anti-Hydro-Integral waterproofer and concrete hardener and Amortop for surface treatment of concrete. Features are waterproofing for concrete, acid, alkali and oil resistant for concrete; hardener for floors subject to chemical conditions; concrete tanks for chemicals. B. A. Meyer is in charge, assisted by M. D. Hausling, of the Newark Laboratory; M. W. Meyer, T. Moore, B. E. Lamphier, of the New York office; M. E. Townsend, New England representative; W. C. Kober, Philadelphia; C. A. Brown, New Jersey, and M. R. Duffy, Chicago.

Apex Chemical Co., New York City, Booth 201

exhibits antimony compounds (Antimonelle, Antimony Lactate, Sulphurette of Antimony), lactic acid, oil, sizes, soaps, softeners, mordants, scrooping, and waterproofing compounds, leather dressings, fat liquors, pigment binders, etc. Features are textiles treated with finishes, etc.; leathers showing effects of their dressings and many samples. Dr. S. M. Hermann, Hugo Helburn and C. B. Rasenberger are in charge, alternating on different days, aided by H. Nelson Craig and R. Rothstein.

Arkell Safety Bag Co., New York City, Booth 540

shows "Arksafe" elastic paper linings for shipping containers, such as barrels, bags, boxes and drums. P. J. Morales is in charge.

Armstrong Cork & Insulation Co., Pittsburgh, Pa., Booth 626

shows Nonpareil insulating brick for the retention of heat in furnaces, boiler settings, ovens, oil stills, kilns and other high temperature equipment; Nonpareil high pressure covering, blocks and cement for the insulation of high pressure and superheated steam lines, feed water heaters, enameling, japanning and drying ovens, tanks, evaporators and similar equipment where the temperature does not exceed 1000 degrees; Nonpareil cork covering for the insulation of brine and ammonia lines, coolers, tanks and other cold surfaces; Nonpareil corkboard insulation for the insulation of cold storage and constant temperature rooms. Features of the exhibit are demonstration of heat insulating qualities of the materials exhibited.

Arnold, Hoffman & Co., Inc., New York City, Booth 517

exhibits a selected line of oils, softeners, gums, starches, dextrines, pigment colors and special products, the majority of which are made at their plant, the Anchor Color & Gum Works, Dighton, Mass. Belle Brand electrolytic caustic soda, solid and flake, and red-topped cylinders for Belle Brand pure liquid chlorine, made by the Belle Alkali Co., at Belle, W. Va. Representatives at the exposition are:—H. H. Hall, W. R. Metcalfe, C. L. Berntson, G. D. Curtis, H. P. Geier and E. Siedenburg.

Atlas Electric Devices Co., Chicago, Ill., Booth 908

presents the Color Fade-Ometer to determine the fastness to light of colors, dyestuffs and inks. A Color Fade-Ometer is in operation, making tests during the show and proving whether dyed or printed matter is sunproof. President C. W. Jameson is in charge, aided by H. S. Thayer.

B

Bachmeier & Co., Inc., New York City, Booth 734

has an interesting display of aniline dyes including dyed materials such as silk, artificial silk, cotton and woolen goods, leather, hats, feathers and numerous products in which aniline dyes are used. William Baur is in charge, assisted by Henry Gettler, Charles Laut, George Meyer and other members of the sales staff.

Bailey Meter Co., Cleveland, Ohio, Booths 236 and 238

exhibits Bailey fluid meters for measuring steam, water, air and other fluids; meters measuring water and air of large capacity will be in actual operation; Gailey-Weir meters, measuring water through a V-notch Weir in operation, capacity 60,000 pounds per hour; flow of fluids through glass pipe, showing orifice in place, vena contracta, restoration of pressure and other phenomena; Gailey boiler meters attached to a miniature gas-fired boiler in operation, meter showing steam flow, air flow, flue gas temperature and draft readings. This will be one of the most interesting working exhibits of power plant equipment ever shown. Bailey coal meters for measuring coal and other granular material; specific gravity recorded for liquids and solutions, automatically compensates for temperature; pulverized coal feeder and meter, also adapted to powdered material; recording tachometer; ash pit loss recorder showing percentage of combustible lost; draft gauges (new design of indicating pointer gauge); differential gas pressure recorder accurate to 1/10,000 in. of water. E. G. Bailey has charge, assisted by several Bailey Meter Co. engineers.

Baker & Co., Inc., Newark, N. J., Booth 743

has platinum laboratory ware and apparatus; precious metals, their salts and manufactured products. H. Klausman is in charge.

J. T. Baker Chemical Co., Phillipsburg, N. J., Booth 623

displays chemical reagents for analytical work, featuring "Baker's Analyzed Chemicals." W. P. Fitzgerald explains the exhibit.

Joseph Baker's Sons & Perkins Co., Inc., New York City, Booth 827

exhibits Werner & Pfeiderer "Universal" kneading and mixing machines for all purposes, including mixing of materials anywhere from heavy or viscous state to dry powder work, machines being equipped with various types of mixing blades, jackets for heating or cooling and in capacity ranging from ¼ to 2,650 gallons. Features of the exhibit are complete set of laboratory machines in operation; small commercial size machines for heavy mixing; mixers for dry powders and liquid work. A. J. Vollrath, vice-president, is in charge, aided by J. C. Caley and S. D. Gridley.

Barber Asphalt Paving Co., Philadelphia, Pa., Booth 509

exhibits native lake asphalts and their compounds. F. F. Massey, district manager, New York, has charge, assisted by L. S. Greenwood, C. A. Connor, H. A. McHugh, W. H. Sutphin, E. R. Christhilf, Theo. Thomas, C. N. Forrest, manager technical department; J. S. Miller, Jr., chief chemist; F. J. O'Neill, Howard Hottel, engineer technical division.

The Barrett Co., New York City, Booths 417 and 419

The exhibit of the Barrett Co., manufacturers of refined coal tar products, is, as usual, held in conjunction with those of the other companies with whom it is associated in the Allied Chemical & Dye Corporation, namely, the General Chemical Co., National Aniline & Chemical Co., Solvey Process Co. and Semet-Solvey Co. This company this year adopts a new plan in its exhibit and will feature the products of its general manufacturing department as well as chemical department products. Exhibits are made of the "Barrett Specification" roofs and various forms of prepared roofing and building accessories of which this company is one of the largest manufacturers in the country. The use of Tarvia for road building will be shown. Another exhibit illustrates the use of Barrett's Carbasota and other creosote oils for the preservative treatment of wood. The value of wood preservation will be demonstrated by actual samples of creosoted and untreated wood which have been subjected to the same ageing conditions. An interesting exhibit is that of coal tar pitch, together with the many important uses which this material is finding. Coal tar oils for ore flotation and other flotation reagents manufactured by this company will also be shown. Among the chemical products featured are Barretan synthetic tanning extracts, which are finding important uses in the tanning of leather; Cumar, a synthetic coal tar resin, which is being adopted extensively in the paint and varnish, rubber, printing ink, and other industries to replace natural gums and resins, and Malic Acid, the acid of apples, cherries and many other fruits, which is being produced by the Barrett Co. by a new synthetic process. This acid is suitable for use as an acidulent for food products in the same manner as the natural occurring acids such as citric and tartaric. This exhibit, therefore, contains features of interest not only for the chemist, but for all engaged in the manufacture of chemical and allied products, and to the layman as well. The Barrett Co.'s booth will be in charge of H. G. Sidebottom, technical service manager.

Bausch & Lomb Optical Co., Rochester, N. Y., Booth 750

shows chemical, metallurgical and binocular microscopes, metallographic equipment, optical measuring instruments, colorimeters, refractometers and saccharimeters. C. L. Oswald and E. H. Anthers have charge.

Beach-Russ Co., New York City, Booth 537

has a line of rotary vacuum pumps, rotary pressure blowers, tempering furnaces, rivet heating furnaces, acid pumps, liquid pumps, pulverizing and grinding machinery. Howard C. Russ, C. A. Beach, A. T. Beach, E. Beach, D. A. Riley and H. J. Wilson are handling the exhibit.

Christian Becker, Inc., New York City, Booth 740

displays assay balances, analytical balances, chainomatic analytical balances, bullion balances, specific gravity chainomatic balances, torsion laboratory scales, torsion cream test and textile scales and weights of all kinds. A. T. Millroy is in charge, aided by J. W. Wetz, W. C. Symington and J. K. Dunn.

Beckley Perforating Co., Garwood, N. J., Booth 56

exhibits perforated metals, welded tanks, sheet metal work, featuring perforated Monel metal agitator and coil banks, Monel metal varnish kettles. F. P. Huston is in charge with T. P. Carlson and T. R. Harvey.

Bethlehem Foundry & Machine Co., Bethlehem, Pa., Booth 207

shows a line of castings made of corrosiron, chemical apparatus and chemical castings. Robert E. Wilbur has charge with J. G. Lehman, A. H. Stevens, R. H. Stevens, S. O. Solt and A. O. Hartley to help entertain.

Blackmer Rotary Pump Co., New York City, Booth 628

exhibits rotary pumps. F. P. Goertz is in charge with A. L. Rock to aid.

P. Blakiston's Sons & Co., Philadelphia, Pa., Booth 15

displays scientific books featuring several new treatises on special phases of industrial chemistry. W. B. Hilt has charge, with H. G. White sales manager.

Boyer, Kienle Co., Inc., New York City, Booth 530

is exhibiting vegetable, seed and nut oils, crude, refined and blown, also oil cake and meal products of their own manufacture, as well as imported stocks. The feature is a complete line of various vegetable oils, a number of which have never been crushed in this country before. J. R. C. Boyer and C. F. Kienle, Jr., are at the booth.

Bristol Co., Waterbury, Conn., Booth 351

shows a line of Bristol's recording and indicating instruments, incorporating the latest developments of the company. H. L. Griggs, general sales manager, is in charge, with C. W. Williamson, New York, and R. M. Walker, Pittsburgh, and others.

A. & F. Brown Co., New York City, Booth 747

exhibits power transmission machinery, grinding and mixing machines, steam and compressed air sirens for fire, fog and distress signals, continuous service foot valves. Features are F. Brown's friction clutch pulley, self-oiling metallic wick shafting hanger, Globe color mixer, Cogswell mill, Newman foot valve and siren with which U. S. naval vessels are equipped. Darius Palmer has charge of the display.

Buckman & Pritchard, Inc., New York City, Booth 431

has an exhibition Zirconium Silicate, or commercially known as zircon spark plug porcelains, high tension insulators, porcelain ware, glazes and enamels, all made of zirconium silicate. Also a varied display of heavy duty super refractories made of zircon. Zircon grinding balls twice as heavy as Norway pebbles. Features are exhibitions showing resistance of Zircon refractories and porcelains to extreme heat, cold and high-tension electrical current under most adverse conditions. Representatives in charge of exhibit are H. H. Buckman, vice-president and general manager, and George A. Pritchard, second vice-president and director of research. Others attending the exposition are W. F. Meredith, president; W. P. Phillips, works manager, and W. V. Knowles, Chicago representative.

Burrell Technical Supply Co., Pittsburgh, Pa., Booth 848

shows chemical glassware, reagents, chemicals, gas analysis apparatus, oil testing apparatus, porcelain ware, etc. G. H. Burrell has charge of exhibit, aided by E. Kellogg and W. A. Carter.

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Camphor Refined
Bismuth Subnitrate
Minor Bismuth Preparations
Seidlitz Mixture
Potassium Iodide, Crystals and Granulated
Iodoform
Iodine Resublimed
Chloroform
Potassium Citrate
Sodium Citrate
Tartar Emetic
Tannin

Calomel
Corrosive Sublimate
Red Precipitate
White Precipitate
Strychnine
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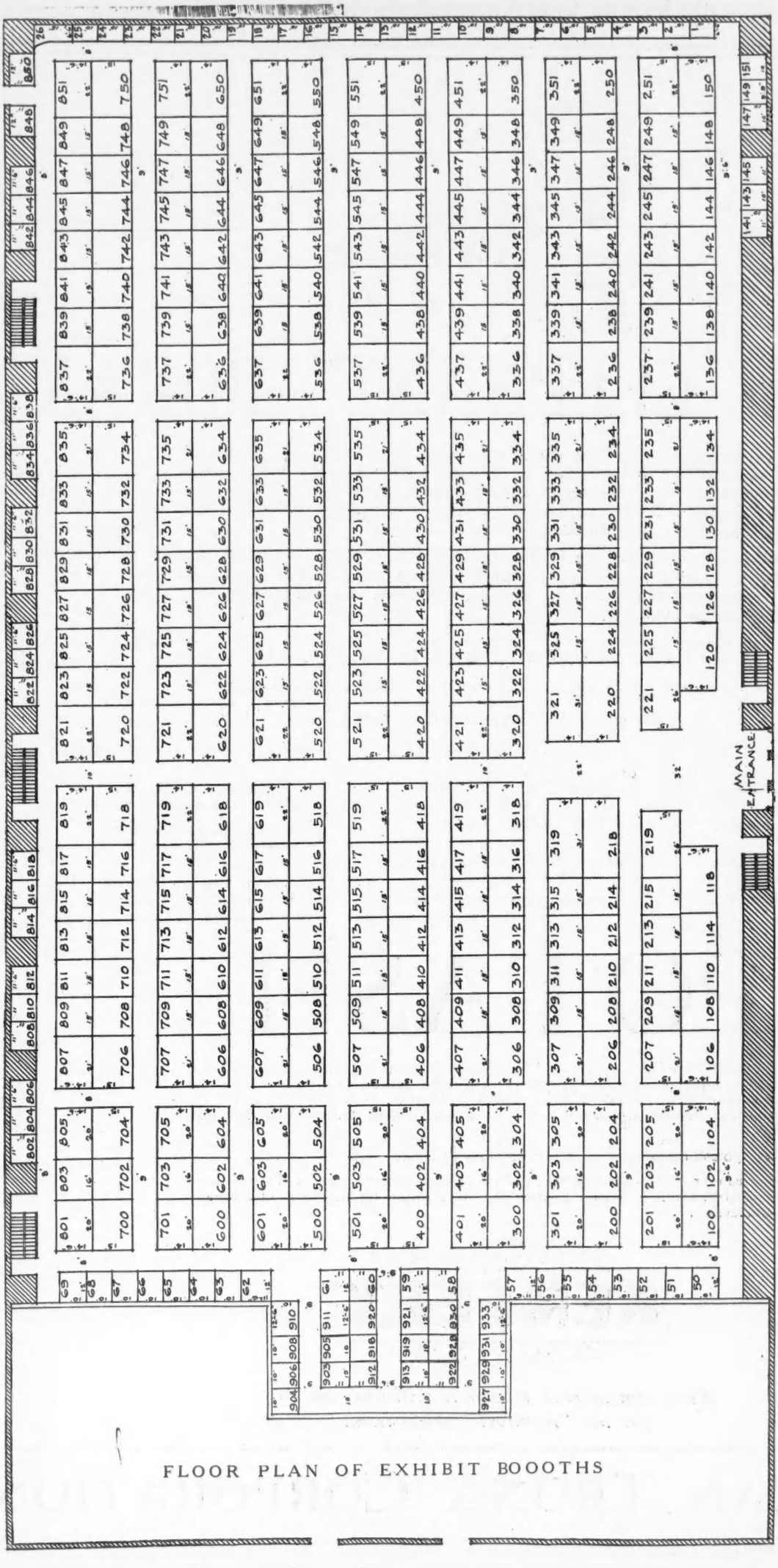
WORKS AND LABORATORIES, BOROUGH OF BROOKLYN, NEW YORK



FLOOR PLAN OF EXHIBIT BOOOTHS

C

Canadian Pacific Railway Co., Montreal, Booths 442, 444 and half of 446

exhibits a huge electrically illuminated map illustrating Canada's natural resources and railroad systems. The booth is in charge of E. R. Bruce, aided by Col. J. S. Dennis, R. G. White, G. G. Omanney and N. S. Rankin.

Carborundum Co., Niagara Falls, N. Y., Booths 326 and 328

displays crude carborundum and aloxite, silicon metal, carborundum and aloxite abrasive products consisting of grains, abrasive wheels, abrasive paper and cloth, rubbing stones, hones, etc; carborundum refractory materials consisting of carbofrax and refrax brick and shapes; carbofrax and silfrax pyrometer protection tubes; carborundum refractory cements. C. E. Hawke is in charge, assisted by W. L. Meek, F. Harrington, G. F. Geiger, J. H. Harriott and S. A. Fenno.

Celite Products Co., New York City, Booth 805

has on view Filter-Cel for filtration; Sil-o-Cel for heat insulation, with a small filter press in operation and a small electric furnace insulated with Sil-o-Cel. A. W. Knight, E. S. Crosby, A. S. Elsenbast, R. L. Warburton and others are at this booth.

Calco Chemical Co., Bound Brook, N. J., Booths 327 and 329

The background of the exhibit is divided in three panels, the middle one displaying a large photographic reproduction of the Bound Brook plant, surmounted by the Calco Red Diamond in electric lights. Each side panel will also display a large electrically lighted Calco Diamond. The ent.re tone of this booth is restrained and dignified, and there are volumes showing the dyed results of all Calco products in textiles, lakes, leather, paper, wood, etc. Representatives from every branch office will be present.

Central Scientific Co., Chicago, Ill., Booth 735

is showing a complete line of chemical apparatus, including De Khotinsky constant temperature appliances, electric drying ovens, water baths and thermostats, Cenco Hyvac pumps, Parr fuel testing devices, electric heaters for gasoline and oil testing, hydrogen ion concentration apparatus, Du Nouy surface tension apparatus, friction drive motor stirrer, and automatic conveniences of every kind for the research or routine laboratory worker. O. T. Louis, manager of New York office, is in charge, aided by S. L. Redman from the main office in Chicago.

Chemical Catalog Co., Inc., New York City, Booth 636

is exhibiting the "Chemical Engineering Catalog," 1921 edition; the "American Chemical Society Series of Technical Monographs," various technical books, and the "Journal of Industrial and Engineering Chemistry." Visitors are permitted to register applications for the new edition of the catalog. In charge of exhibit are F. W. Robinson, president; E. G. Nellis, vice-president and secretary; R. W. Reinhold, treasurer; F. M. Turner, Jr., technical editor; John Helfrich, manager information bureau; D. D. Berolzheimer, C. F. McKenna, Jr., assistant technical editors; E. W. Bennett, production editor.

Chemical Equipment Co., Chicago, Ill., Booth 425

This firm is exhibiting Ceco valves, Ceco pumps, Ceco sprays and the Ceco evaporator, which is made a feature. It has been developed and extended by their own engineers. There is an actual working evaporator at the exhibit for the examination of all interested parties, which attracts the attention of the chemical industry. Robert V. Cook has charge of the display.

Chemical Pump & Valve Co., Perth Amboy, N. Y., Booth 331

displays a full line of packingless centrifugal pumps, packingless valves, stoneware pumps and valves, many of the exhibits being in full operation. F. A. Warter, manager of the company, and A. B. Anstell, treasurer, are in charge.

Antoine Chiris Co., New York City, Booths 513 and 515

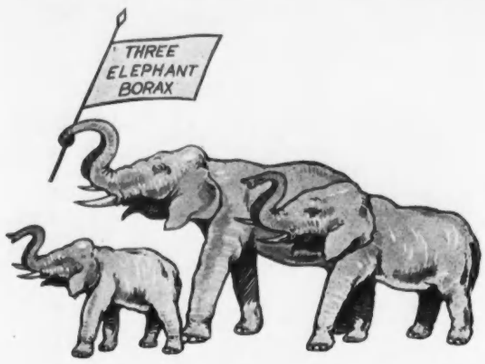
exhibits essential oils, synthetic aromatic chemicals, oleoresins, as imported and manufactured by themselves or principals abroad, raw materials for same, vanilla beans, French natural floral products, etc. Dr. G. F. Richmond is in charge.

Cleveland-Cliffs Iron Co., Cleveland, Ohio, Booths 544 and 546

shows methyl alcohol, formaldehyde, methyl acetone, C. P. acetone, acetic acid, acetone oil solvents, pitch, etc. Samples of the materials and photographs of their works are featured. C. B. Hall, A. Farrell and E. J. Hudson are at the booth.

Clipper Belt Lacing Co., Grand Rapids, Mich., Booth 149

Three different types of the rapid "Clipper" belt lacing machines are shown, and the rapidity and simplicity of joining all kinds of belting by the "Clipper" method is demonstrated. The chief feature of the exhibit is the proof which is offered that a substantial saving can be made in the cost of factory production by the use of the "Clipper" system of belt lacing. In charge of the exhibit is Wm. F. Kall.



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AMERICAN TRONA CORPORATION

Woolworth Building New York City

Arthur Colton Co., Detroit, Mich., Booth 831

has a fine line of pharmaceutical machinery in operation driven by motors as follows:—No. 6 combination filler, closer and clip fastener, No. 3 rotary tablet machine, No. 4 rotary wet granulator, No. 3 combination filler, closer and clip fastener, No. 8 paste mixer, No. 10 tablet counter, conveyor table, punch cupping machine. Other exhibits are new hand filler, clips assorted, foot power clip fastener, punches and dies assorted, No. 5 liquid filler, suppository moulds, No. 1 hand tube closer, capsule moulds. Factory experts are in charge of the exhibits.

Combustion, New York City, Booth 826

displays its publication, Combustion, issued by the Combustion Publishing Corp. H. Stuart Acheson is in charge.

Commercial Solvents Corp., New York City, Booth 330

exhibits Butanol (butyl alcohol), aceton, U. S. P.; denatured alcohol. All products manufactured by the Weizman process. Features are uses made of these solvent products and materials made from the same. In charge of the exhibit is Horace E. Hall, aided by P. G. Mumford, vice-president; H. E. Hall, sales manager; C. L. Gabriel, Western sales manager; T. F. Carty, manager New York office; Chas. Bogin, plant chemist.

Contact Process Co., Buffalo, N. Y., Booth 609

has a full line of sulphuric, muriatic, nitric and mixed acids. Truman Smith, secretary, and Dr. H. von Rucker, works manager, are in charge, aided by J. E. Curry.

The Container Club, Chicago, Ill., Booth 746

This exhibit includes a display of corrugated and solid fiber shipping boxes used for the packing and shipping of nationally advertised and well known commodities, pointing out the efficacy of this package in the saving of freight, weight, space occupied and loss and damage preventive. There is also demonstrated a device known as the Webb Paper and Box Tester, which is used in determining the strength of the board used in the manufacture of the boxes. Representatives in charge of exhibit, J. D. Malcolmson, Mellon Institute, Pittsburgh; J. W. Webb, Container Club, Chicago.

Coors Porcelain Co., Golden, Colorado, Booth 533

exhibits representative articles of chemical and scientific porcelain used in the laboratory control of manufacturing operations. Features of the exhibit are a power driven lemon and orange juice extractor, all parts of which that come in contact with acid are made of acid-proof Coors U. S. A. Chemical and Scientific Porcelain, showing the adaptability of Coors porcelain for commercial uses where acid-proof material is required. Representative in charge of exhibit, H. F. Coors.

Corning Glass Works, Corning, N. Y., Booth 535

exhibits Pyrex laboratory glassware, featuring glass blowing and lamp work. G. W. Drake, I. B. Cary, F. F. Pfeiffer, A. S. Eggleston and F. Kraissel handle this display.

Crane Co., Chicago, Ill., Booth 335

shows valves, pipe fittings and steam specialties, made of brass, iron, ferrosteel, cast steel and forged steel, in all sizes, for all pressures and all purposes; pipe, heating and plumbing materials. Features of the exhibit:—"Crane-Auto Boiler Feeding System" in actual operation; steam specialties, traps, pressure regulators, separators, auto-stop check valves, emergency valves. Representative in charge of exhibit, W. L. Oswald; others attending are Wm. Link, W. L. White and J. F. Lee.

Crane Packing Co., Chicago, Ill., Booth 68

exhibits chemical packings, surface condenser packing, acid packing. Features are metallic packings which withstand the action of oils, paints, varnishes. Representative in charge of exhibit, J. N. Walton.

D

The Davidson Chemical Co., Baltimore, Md., Booths 138-140

This company specializes in the production of sulphuric acid, acid phosphate, magnesium fluosilicate and silica gel. Samples of these products are displayed. As a feature exhibition an operating unit illustrating silica gel absorption on various vapors, designed to show the process of absorption, recovery of the vapor and the activation of the gel for re-sue. The following representatives of the company are at the booths:—J. R. Wilson, Ernest B. Miller, Dr. W. S. Patrick, Dr. B. F. Lovelace, Dr. G. B. Connoly, Dr. Paul Davis, F. S. Wagner and C. Wilbur Miller.

M. T. Davidson & Co., New York City, Booth 503

A full line of Davidson pumps for all services is on display. In addition to these several types of pumps for chemical service, a working model is in operation. Messrs. John Lawe, William E. Brennan, T. J. Rogers and F. O. Kompass are receiving visitors at the booth.

De Laval Separator Co., New York City, Booths 608-610

The adaptation of De Laval separators to chemical service is emphasized by a display of various types of centrifugal machines. Special processes are featured, including the cottonseed oil refining, bright stock manufacture in the petroleum industry, as well as some others. The company is represented by Walter D. Cleary, in charge; A. H. Meston, J. H. Lisle, Robter, Kostelak and H. H. George.

Detroit Chemical Works, Detroit, Mich., Booth 609

Space will be used as a visiting place for friends and guests, the only exhibit being a bird's-eye view of the plant. Edward S. Davis, secretary and manager, will be in charge.

Detroit Range Boiler and Steel Barrel Co., Detroit, Mich., Booth 318

The company has arranged an interesting display of perfect metal bilge barrels with closed and removable heads, light and heavy drums with ordinary openings and some with friction tops. H. Ross Mack is in charge of the booth, seconded by the able assistance of W. B. Goddard and C. C. Choate.

J. P. Devine Co., Buffalo, N. Y., Booths 114 and 118

Ample arrangements have been made for reception of visitors at this display. The feature exhibit is a series of enlarged photographs of actual installations of a large quadruple effect vacuum evaporator, a vacuum chamber dryer complete with auxiliaries. Messrs. J. P. Devine, L. W. Graves, H. W. How, and A. N. Howes will be in attendance.

Diamond State Fibre Co., Bridgeport, Pa., Booth 731

A full line of vulcanized fibre sheets, rods and tubes; a new waterproof insulation; condensite celoron in rod and tube form; bosex cans and trucks made from vulcanized fibre; and many additional specialties are displayed together with a feature attraction in the way of specially treated papers. Charles M. Bogert, of the New York office, and E. J. Sniffen, Jersey representative, are in charge of the exhibit.

Dings Magnetic Separator Co., Milwaukee, Wis., Booth 312

Processes relating to magnetic separation form the backbone of the company's presentation. Magnetic separation as applied to industry, with samples of materials separated by the process, is featured and backed up by many photographs of actual installations. Visitors will be received by A. H. Ackermann, E. F. Oates, J. E. Randall and R. A. Manegold.

Dominion Bureau of Statistics, Canada, Ottawa, Canada, Booth 443

The chemical and metallurgical progress in Canada is admirably shown by means of statistical charts. S. J. Cook will greet visitors in the booth.

Dominion Water Power and Forestry Branches, Department of the Interior, Ottawa, Canada, Booths 445 and 447

General information relating to the Canadian water power and forest resources is to be had at this exhibit. The booth is in charge of W. B. Stokes, of the Forestry Branch, assisted by an engineer from the staff of the Dominion Water Power Branch.

The Dorr Co., New York City, Booths 214-218

As a feature topping an interest exhibit, the company displays a Dorr Bowl Classifier, Dorr Tray Thickener and a Dorr Washer. The object of the display is to illustrate continuous mechanical handling of liquids and solids in suspension. G. W. Depetti, assisted by G. V. N. Dorr, P. M. McHugh, H. N. Spicer and D. S. McAfee, is in charge of the booths.

Dow Chemical Co., Midland, Mich., Booth 602

The general line of pharmaceuticals, dyes, intermediates, industrial and heavy chemicals which this company produces is amply displayed. The wide interest which this company's products always arouses is enlarged this year by its especial presentation of Dowmetal pistons. The alloy of the pistons with which the Frontenac team were equipped at the Indianapolis race is shown. The team finished first, third, and ninth. Dowmetal is manufactured by electrolysis from brine pumped in the vicinity of Midland, Mich. G. L. Camp, sales manager, is in charge, with the assistance of H. H. Dow, J. T. Pardee, R. E. Dorland, George Ashworth, W. I. Doan and F. A. Koch.

Drying Systems, Inc., Chicago, Ill., Booths 811 and 813

The process involving use of the company's spray drying equipment for drying chemicals, liquids, etc., forms the backbone of this display. F. A. Lippert, president of the company, has the assistance of C. H. Currier and W. B. Croan in explaining the process to visitors at the booths.

E. I. du Pont de Nemours Co., Inc., Wilmington, Del., Booths 500, 502, 504, 601, 603, 605

Four divisions of the business will be represented: — Dyestuffs Department, Chemical Products Division, Lithopone, Dry Colors and Pigments Section, and Acids and Heavy Chemicals Division. The products manufactured and sold by these four divisions include a very wide range of chemicals which enter into the manufacturing processes of practically all the basic industries, as well as many other industries that touch nearly every side of the human life. One's imagination is not taxed to visualize the importance that these products play, directly or indirectly, in the daily routine of business, home or social life of the nation. This is not only due to the great variety of products manufactured, but the still greater number of uses to which they are put.

The Duriron Co., Dayton, O., Booths 249 and 251

Emphasis is laid on a very complete line of apparatus covering the problems of corrosive handling as a feature of the products exhibited. The idea is to so arrange a plant that corrosives may be carried all the way in Duriron equipment. The general display submits samples of acid-proof castings, pumps, exhaust fans, kettles, valves, cocks, pipes and fittings, ejectors, laboratory equipment, radiation units, etc. President Pierce D. Schenck is in charge. He is assisted by M. W. Smith, W. E. Pratt, R. H. B. Elkins, E. A. Suverkrop, T. A. Jabine and Oystein Jacobsen.

E

Eagle-Picher Lead Co., Chicago, Ill., Booths 409-411

The company is showing a complete line of lead pigments, lead pipe, lead castings and specialties, lithopone, zinc oxide, slab zinc. As a feature, an operating sublimed white lead plant is provided. In the matter of finished products, a presentation is made of storage batteries, linoleum, cut glass, rubber, insectides, etc. J. R. MacGregor, H. Gates, C. E. Gilson, W. Van Berlo, H. B. Taylor and D. T. Eastman are representing the company at the booths.

Economy Engineering Co., Chicago, Ill., Booth 701

Motion pictures show the practical operation of hand and electric tiering machines. They emphasize the application of the machines to lifting, piling and storage problems. T. R. Tordoff is receiving visitors at the booth.

Egyptian Lacquer Mfg. Co., New York City, Booths 539-541

An interesting display of manufactured products utilizing the lacquers and lacquer enamels has been provided by the manufacturing consumers of this concern. The wide range of usage of lacquers is prominently set forth. A. D. Sopher, with the assistance of D. Stolpe, F. G. Drake, B. Popper, C. E. Hayward and C. E. Schlott, is representing the company.

Eimer & Amend, New York City, Booth 634

An interesting presentation is made of the Wysor polishing machine, Hortvet Cryoscope, Juerst Ebullioscope, Bingham & Green, Viscometer Plastometer, McMichael Viscisimeter, Freas ovens, electric furnaces, Gramercy reagent bottles, Barnstead water stills, etc. Theodore Taistra has charge of the booth and is helped in greeting visitors by C. G. Amend, W. R. Elmer, F. W. Shulenberger, C. E. Volland, E. P. Churchill and R. S. Chalfont.

Electro Bleaching Gas Co., New York City, Booth 408

After presenting samples of liquified chlorine gas, together with textiles and sulphite pulp bleached by that medium, the company provides a feature exhibit in the form of a cylinder containing the first pound of chlorine gas liquified in the United States. J. B. Dugan and S. W. Jacobs are directing an efficient staff of assistants at the booth. Other representatives of the company who will also be found there are:—E. D. Kingsley, D. K. Bartlett, G. R. Ellis and W. A. Kennedy.

G. H. Elmore, Philadelphia, Pa., Booths 514-516

An Elmore Continuous Centrifugal is on exhibit. R. C. Comley is in charge, and company representatives in the person of G. H. Elmore, Allan C. Wood and R. W. Rigler are at the booth.

Elyria Enamaled Products Co., Elyria, O., Booth 407

The company is featuring a display of an enameled still connected with a hot oil-heating system for high temperature work. Several examples of glass-enameled cast-iron units show the wide variety of units which the company designs for chemical work. The company is represented by W. E. Gray, D. B. Etters, R. W. Smith, S. A. Smith, W. I. L. Duncan, E. P. Poste and M. Donauer.

Charles Engelhard, Inc., New York City, Booth 702

Scientific apparatus in the form of the Engelhard Indicating and Recording Instruments, automatic temperature regulator, thermo-couple mountings, impervite porcelain laboratory ware, protecting tubes, and laboratory electric furnaces is shown. C. W. Hubbard and R. W. Newcomb, representing the company, are to be found at the booth.

Everlasting Valve Co., Jersey City, N. J., Booth 525

An interesting presentation of various valves, the product of this company, is made. As an especial exhibit, a Flatplug valve is displayed. This is the first showing of this valve, which is designed for handling paint and heavy liquids. The following representatives of the company are at the booth:—E. N. Corning, John H. Allen, Wylie G. Wilson, S. E. Carman, D. A. Jenkins and F. L. Schultze.

F

W. L. Fleisher & Co., New York City, Booths 130 and 132

is exhibiting the Fleisher Spray Dryer and the Fleisher Air Conditioning System in operation. Samples of the products dried, together with photographs, will be on view. The picture will show some of the installations made by this company. S. W. Fletcher is taking charge of the displays here, assisted by W. L. Fleisher, A. W. Lissauer, R. E. Keyes and D. L. Connelly.

Florasynth Laboratories, New York City, Booth 59

is displaying raw materials for the manufacturer of perfumery and extract. Preparations to take care of the inquiries at the booth have been amply provided for. The following are representing the company at the display:—Louis A. Rosett, Charles L. Senior and Alexander Katz.

Foxboro Company, Foxboro, Mass., Booth 309

is showing indicating and recording instruments, pressure and vacuum gauges, and hydraulic ammonia, liquid level and other gauges. Also thermometers, automatic temperature controllers and CO_2 recorders. The CO_2 recorder is shown in operation, as is also the automatic temperature recorder-controller. W. A. Patrick has been placed in charge of the exhibit.

G

General Bakelite Co., New York City, Booths 50 and 51

Bakelite raw materials are on view at these booths, together with a collection of products manufactured from them. The group of finished products includes agitators, airplane propellers, beads, bowling, billiard and pool cue-balls, bushings, camera frames, dental lamps, distributor heads, electric drill parts, fire extinguishers, gears and pinions, impregnated fibres, instrument tops and handles, insulators, jewelry, knife handles, oil test cups, ornaments, pipestems, pistol grips, switchblocks, telephone instruments, water-ozonator parts, welding goggles, wire insulation and wireless apparatus. Hylton Swan has charge of the exhibit. Others who will assist are—H. S. May, William S. Gordon, Jr., and C. H. Hall.

General Ceramics Co., New York City, Booths 233 and 235

This display is of acid proof chemical stoneware and fused silica. Among the features of the exhibit are a stoneware centrifugal pump, stoneware exhaust fan; also models of stoneware equipment including acid storage installation, nitric acid plant and towers with accessories; also fused silicaware for industrial and laboratory purposes. P. C. Kingsbury will be assisted at the exhibit by these gentlemen:—Hubert Royer, R. S. Beecher and K. J. Peters.

General Chemical Co., New York City, Booths 421 and 423

On exhibit are Baker & Adamson Reagent chemicals, the new Herreshoff furnace for roasting ores and Hard-N-Tyte for contrete and mortars. The contract for designing and building the structure which will house the display was given to Coffin & Coffin. James M. Keating has been placed in charge, and he will be assisted by G. G. Ackerson, manager of sales; L. de B Lovett, G. N. Vardy, J. E. Wilson, M. M. Biddison, W. J. Kramer, R. P. Silva, W. R. Chappell, J. H. Libbertson and S. B. Greene.

General Electric Co., Schenectady, N. Y., Booths 211, 213, 215

An arc welding outfit, welding seams in oil switch tanks and doing other work, is presented at this exhibit. A new type of muffled arc furnace recently perfected is also demonstrated. The arc welding outfit consists of a WD 94 kw. 200 ampere 60-20 volt generator direct connected to a 7½ h. p. 2 phase, 60 cycle, 220 volt motor. The furnace is a 50-pound proposition and of the SM type, with electrode and crucible installed. Other features are a semi-cylindrical furnace, toolroom muffle furnace, soldering iron furnace, an automatic control board, used on a single electrode furnace; oven-heaters, 100,000 v. Kenotron tubes, soldering iron, sample sheath wire units, an oil tempering bath and a high tension filament heating transformer for use with 250 milli-amp 100,000 v. Kenotron. L. W. Shugg represents the company at the booths.

General Filtration Co., Inc., Rochester, N. Y., Booth 315

On exhibition are filtros, uniformly porous, acid proof, artificial stone, filter plates, which are used for filtering the various acids, organic and mineral, and for diffusing air and the various gases when rapid agitation, oxidation or gas absorption is desired. Electro-Filtros, acid proof diaphragm, which allows ionic diffusion, but which prevents a rapid percolation or mixing of the anolyte and catholyte liquors. A model exhibit shows the uniform porosity of the plates by blowing air through one of them, supporting a column of water on its surface. Large acid proof diaphragm cells also are featured. F. E. Leiby, sales manager, will have the assistance of Colonel Robacher, director, at the exhibit.

Glamorgan Pipe & Foundry Co., Lynchburg, Va., Booths 206, 208

The process of extracting salt from saturated brine is presented here. The equipment used includes a standard vacuum exhauster, a centrifugal pump; also a trap and compartment filter and a lime kiln. All these are in operation daily. A caustic flaker has also been included in the display.

A Year of Progress

AT the time of the last Chemical Exposition in New York the "National" cataloged a list of dyes which represented the achievement of four years of intensive effort. In the twelve months that have passed since then there have been added to the list of "National" products some twenty-eight technical dyes.

These additions do not represent the whole development that has been carried on in the Research Laboratories, but only those new dyes that have been put into standard production and are now offered to the trade.

New "National" Dyes

(Introduced since September 1920)

National Alphazurine A
National Alphazurine 2G
National Acid Fast Violet BC
National Wool Green S
National Quinoline Yellow
National Alizarine Sapphire FS
National Brilliant Green B Crystals
National Wool Yellow LF
National Wool Blue CG
National Wool Orange R Conc.
National Ponceau R
National Superchrome Yellow GN
National Diazine Beta Black N
National Diazine Black V
National Erie Fast Gray R
National Niagara Blue R
National Niagara Blue HW
National Niagara Blue RW
National Niagara Sky Blue 6B
National Erie Fast Orange A
National Erie Fast Orange CG
National Erie Fast Scarlet YA
National Erie Fast Scarlet 4BA
National Erie Fast Scarlet 8BA
National Erie Fast Red 8BLN
National Erie Yellow Y
National Naphthol AS
National Sulphur Blue LRR

The introduction of new products is only part of the practical advance that has marked the past year. Of equal interest is the service to dyers which has been developed in three channels; the matching of shades and determination of formulae in our branch and home office laboratories; on-the-spot service in mill dyehouses given by our technical experts; publication and distribution of color cards and other technical literature.

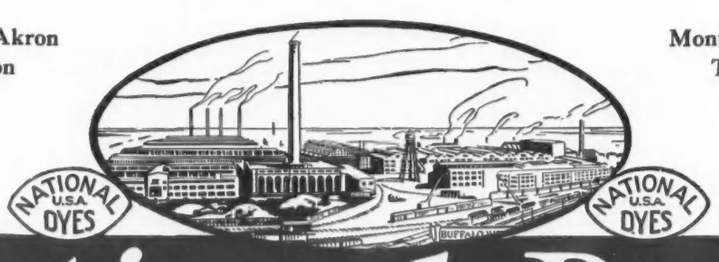
This record of progress is offered to the great textile and other color using industries of America as evidence that the "National" is determined to contribute its share toward the establishment of American dyes and the upbuilding of the dyestuff industry.

The Company will have on view at the Seventh National Exposition of Chemical Industries a representative line of Intermediates and Dyestuffs, together with a variety of textiles and other material showing the application of these products. Technical representatives of the Company will be in attendance.

National Aniline and Chemical Company, Inc.

21 Burling Slip, New York

Akron
Boston
Chicago
Hartford
Charlotte



Montreal
Toronto
Providence
Philadelphia
San Francisco

National Dyes

Glens Falls Machine Works, Glens Falls, N. Y., Booth 302

An interesting exhibit at this booth is a sulphur burner, which is shown in operation. It operates on the rotary principle. The exhibitors will be ably represented by O. J. Mills, sales engineer, who is in charge; Frederick S. Chaffee and Fred B. Chappell.

Goulds Manufacturing Co., Seneca Falls, N. Y., Booth 126

Reciprocating, centrifugal and rotary pumps are manufactured by this concern, and it has made an exhibit which will permit the visitor to see some worthwhile devices. At the booth are H. R. Gumbert, H. J. Angell, W. J. O'Neill and E. E. Brereton.

H

Hanovia Chemical Co., Newark, N. J., Booth 55

specializes in quartz-glass laboratory wares, mercury vapor arc lamps, laboratory thermometers, and electric resistance furnaces for laboratory use. J. P. Rainbault is in charge of the exhibit.

Hardings Co., New York, Booth 518

is exhibiting the Hardings Conical Ball Mills and Pebble Mills used for wet or dry reduction of ores, cement, coal, and innumerable chemical and industrial products. A feature of the exhibit is a full sized Harding Conical Mill shown in operation. James G. Parmelee is in charge.

Hauser-Standard Tank Co., Cincinnati, O., Booth 313

feature wooden tanks of special construction suitable for use by the chemical industry. S. Hauser, Jr., is in charge.

Heyden Chemical Co. of America, Inc., New York, Booths 413-415

are showing salicylic acid and its compounds, and samples of formaldehyde, para formaldehyde, hexamethylenetramine, saccharine, sodium benzoate and colloidal silver preparations. A feature of the exhibit is a model (exterior) of the company's plant at Garfield, N. J., and the process of distillation of synthetic wintergreen oil. Representatives at the exhibit are Scott Symington, Preston Furman, Chas. R. Mott, George Tewes and Eugene W. Wall.

Hooker Electrochemical Co., New York, Booths 526 and 528

show caustic soda, bleaching powder, liquid chlorine, synthetic muriatic acid, mono chlor benzol, antimony trichloride, metallic chlorides and chlorine products. W. H. Chamberlain is in charge.

Howes Publishing Co., New York, Booth 16

display copies of "American Dyestuff Reporter," a weekly newspaper and monthly technical journal devoted to the dyestuff industry. A. P. Howes has charge.

Huff Electrostatic Separator Co., Arlington, Mass., Booths 724 and 726

shows an electrostatic separator and pneumatic plumb jig. The company is represented at the exhibition by H. B. Johnson, assisted by William E. McKie and F. R. Johnson.

Hunter Dry Kiln Co., Indianapolis, Ind., Booth 812

Models of the company's kiln are shown. Visitors will be received by Harry Hunter, Arthur Stoulx, O. W. Ragsdale.

F. C. Huyck & Sons, Albany, N. Y., Booth 510

Woolen filter cloth in all its varieties is shown by this firm, and E. A. Rees and A. V. Wright have charge.

Paul B. Huyette & Co., Inc., Philadelphia, Pa., Booth 108

A feature is the exhibits of a Hays CO_2 and Draft Recorder in operation, and also a sectional Reliance Water Column and Steam Trap. There will also be other appliances handled by this company on view. A. F. Bittner will be in attendance.

I

Industrial Filtration Corporation, New York, Booth 234

shows a rotary filter in operation and also features other automatic and semi-automatic appliances. George Dickey is in charge.

Innis, Speiden & Co., Inc., New York, Booth 604

exhibit a full line of industrial chemicals used extensively in such industries as leather, paint and varnish, rubberware, glass and colors, photographic, paper, textiles, composition floorstuffs, dyestuffs and toilet preparations. Foreign chemicals such as potash salts, zinc oxide, chloride of zinc, etc., are also to be seen. Features are the products of the following firms, for whom Innis, Speiden & Co. are sole distributors:—Isco Chemical Co., Isco Bautz Co., Wilbur White Chemical Co., United Chemical Co., Sheffield By-Products Co., Pacific Coast Talc Co. Representatives in charge are E. H. Manahan, G. H. Mackelcan, C. L. Speiden.

International Carbon Products, New York, Booths 724 and 726

exhibits graphite and graphite products. In charge are H. B. Johnson and C. D. Burrage.

International Nickel Co., New York, Booths 342 and 344

displays monel metal and fabrications thereof, nickel salts and nickel fabricated articles. F. H. Waycott will receive visitors.

International Salt Co., New York, Booth 538

All kinds of salt are shown. In charge is H. J. Osborn.

Irving Iron Works, Long Island City, Booth 806

Full sized demonstration of flooring and steps feature this exhibition of flooring materials. The firm is represented by W. H. Roope.

J

Jewell Polar Co., Chicago, Ill., Booth 333

exhibits distilling apparatus of various types. A feature is Polarstil in actual operation under steam pressures of 10 to 50 pounds from an adjoining gas filled boiler. A. C. Jewell and J. H. Needler have charge.

K

M. W. Kellogg Co., Inc., New York, Booth 837

Specimens of welded vessels are shown and a full description of the processes of welding which produces large autoclaves for pressures up to 1,500 pounds square inch and pots for temperatures up to 1,500 deg. F. H. L. R. Whitney is the company's representative.

Kewaunee Mfg. Co., Kewaunee, Wis., Booth 735

A representative line of laboratory apparatus is shown, including tables specially equipped for research and control laboratories. The tables have the well-known patented Kewaunee bolt construction tops. Representatives who will attend the exhibition include J. M. Roberts, S. L. Redman, A. B. Carter, Charles G. Campbell, O. T. Louis, Charles Ress, Joseph R. Fisher and Theodore P. Fuchs, Jr.

Karl Kiefer Machinery Co., Cincinnati, O., Booth 833

A power rotary vacuum bottle filling machine features this exhibition, which includes as well, pumps, filters and filling machines of many designs. In charge is E. E. Finch.

Maurice A. Knight, East Akron, Ohio, Booth 721

shows acid proof chemical stoneware from small pieces to large in all kinds of designs and for all kinds of purposes. Maurice A. Knight will attend, and he will be assisted by Charles Dennison and Samuel J. Baril.

The Koppers Co., Pittsburgh, Pa., Booth 348 and 350

An actual size model Koppers Triangular Flued Coke Oven is exhibited, along with a new continuous type tar distilling apparatus, and a miniature model battery of by-product coke ovens. The firm is represented by Charles R. Meissner and D. E. Price.

L

Lakewood Engineering Co., The, Cleveland, Ohio, Booth 550

exhibiting a Lakewood 704 platform truck, operated by a storage battery, and a 60" Lakewood tier lift truck, also operated by a storage battery. The following representatives will be in attendance:—E. H. Jahnz, district manager, Charlotte, N. C.; F. W. Truex, district manager, Atlanta, Ga.; T. L. Bell, district manager, Dallas, Tex.; W. T. Chollar, district manager, New York; A. L. Schuller, special engineer, New York; A. W. Conner, special engineer, New York; R. M. Jones, sales division.

Lead Lined Iron Pipe Co., Wakefield Mass., Booth 316

shows lead-lined iron pipe, tin-lined iron pipe, lead-lined iron fittings, in both flanged and screwed ends, acid-proof lead-lined pipe, acid-proof lead-lined iron valves, and acid-proof lined iron fittings (flanged). In charge is Daniel H. Regan.

Leeds & Northrup Co., Philadelphia, Pa., Booth 337

features exhibits of an apparatus for measurement of H-ion concentration and electrolytic conductivity. Complete setups of the following equipments can also be seen:—Precision potentiometer, bovie potentiometer, portable H-ion potentiometer pyrometers, indicating, recording, signalling and controlling, and optical pyrometer. R. D. Milner represents the firm at the exposition.

Liberty By-Products Works, Inc., Hawthorne, N. J., Booth 532

shows samples of antimony lactate, antimony salts 65 per cent., chrome acetate, chrome fluoride, discharge liquor T. S., lactolin, steam black, steam blue, potash soap, olive oil soap, red oil soap, olivol, cleanol, lubricol, fulling soap and hydrosol. In charge are E. J. Zillessen and W. H. Zillessen.

Liquid Carbonic Co., Chicago, Ill., Booth 906

Valves, regulators and liquid carbon dioxide are to be seen. E. D. Hale is in attendance to explain the manufacture and large number of industrial uses of dioxide.

Lunkenheimer Co., Cincinnati, Ohio, Booth 606

Features of the exhibit are the valves constructed of nickel, monel, electric furnace, cast steel and special non-corrodible alloys adapted for the chemical trade. Of special educational value are the various samples of different types of valves so dissected as to display and explain the manner in which they function. A complete line of engineering specialties is also shown. Walter A. Reynolds is in charge.

Luzerne Rubber Co., Trenton, N. J., Booths 17 and 18

Several lines of hard rubber specialties, especially hard rubber pipe, fittings, buckets, etc., for the handling of chemicals are shown. The company is represented by H. E. Case.

M

Maas & Waldstein Co., New York, Booth 650

have two exhibits, one of lacquers and lacquer enamels and the other one of leather solutions, with samples of lacquer and lacquer enamels and wood and wood metal finished with these naterials. Leather exhibits cover pyroxylin finishes of grain and split upholstering leather, also automobile and furniture leather in black and colors. Other leathers in pyroxylin finishes are shown. H. C. Flanigan will receive visitors.

Magnesia Association of America, Philadelphia, Pa., Booth 301

A theoretical flow chart showing manufacturing processes with samples at different stages of manufacture features this section. A moving picture reel for Engineers' Convention, and large photographs of installation can be seen also. G. S. Stuart represents the firm at the exposition.

The Manhattan Rubber Mfg. Co., Passaic, N. J., Booth 733

Features of the exhibit are a rubber-lined centrifugal in operation. A large blower is split to show the rubber lining. Other hard rubber appliances, centrifugals, baskets, blowers, pipe, rubber belting, hose and packing of all kinds are shown. The exhibit is in charge of H. E. Smith.

Mathieson Alkali Works, Inc., New York, Booth 736

Alkali chemicals and bleaching powder, comprising this company's well-known brands, are shown. Both light and dense ash and all grades of caustic soda, including stick, fused, flake and ground, 60 per cent., 70, 74 and 76; liquid chlorine and chlorine solvents. The company is represented by John W. Kienle and John W. Boyer.

Mead & Co., Detroit, Mich., Booth 106

A pony Mead mill for laboratory and small processes use is shown. The exhibit is in conjunction with Paul O. Abbe, Inc. John Mead, Jr., is representing his firm.

Merck & Co., New York, Booth 600

exhibits medicinal chemicals such as bismuth salts, iodine and iodides, salicylates, salol, synthetic oil wintergreen, etc. Blue Label Reagents occupy a prominent place in the exhibit.

The Merrill Co., San Francisco, Cal.

Merco Nordstrom plug valves comprise the exhibit. In charge is H. P. MacGregor.

Metals Disintegrating Co., New York, Booth 542

Metal dusts such as zinc, tin, lead and aluminum feature the exhibit. Litharge and red lead also form a part. The company is represented at the exposition by S. G. Shatzberg.

Mine Safety Appliance Co., Pittsburgh, Pa., Booth 848

Everything for mine and industrial safety is shown, featuring particularly MSA Carbon Monoxide and all service types of gas masks; the MSA Carbon monoxide detector and the improved Gibbs self-contained oxygen breathing apparatus. In charge of the booth is Harold J. Seagrave.

Miner Edgar Co., New York, Booth 749

displays products made by the different departments of the Miner Edgar Company, composed of clays, wood alcohol, denatured alcohol, pyroxylin solutions and pyroxylin chemical specialties. The firm is represented by Charles Zeiger.

Mojonnier Bros. Co., Chicago, Ill., Booth 933

features a rapid and accurate moisture test, various laboratory equipment and glass ware. The president, Timothy Mojonnier, receives visitors.

Monarch Manufacturing Co., Philadelphia, Pa., Booths 4 and 5

shows lead stop valves, lead check valves, lead syphons, an air device for automatically lifting acids, stoneware sprays for absorbing sulphur gases, etc., spray nozzles of brass, iron, hard rubber; as well as plugs, seats and oil burners. In charge is Thomas W. Murphy.

Mono Corporation of America, Coal and Iron Exchange, Buffalo, N. Y., Booth 227

exhibits gas analyzing apparatus applied largely for boiler and industrial furnaces to prevent fuel losses. A feature is the Duplex Mono, which records CO_2 and CO on one chart. The firm is represented by F. D. Harger and Albert Saunders.

Morse Chain Co., New York, Booth 630

Large and small drivers are shown in operation in conjunction with the Morse silent rocker joint chain driver. F. G. Anderson will receive visitors.

J. L. Mott Iron Works, New York, Booth 506

shows cast iron equipment, plain and enamelled, for chemical manufacture such as steam jacketed stills, crystalizing pans, etc. The booth is in charge of J. J. Blackmore.

Multi-Metal Co., New York, Booth 607

Display consists of wire cloth in all metals, metallic filter cloth, that is, monel, nickel, etc., and standard testing sieves. The concern's representatives are Siegfried Stern and Frederick Stern.

Nash Engineering Company, South Norwalk, Conn., Booth 419

Nash Hytor air compressors and vacuum pumps are displayed here. Also the Jennings Hytor vacuum heating pumps, the Hytor Condensation pump and receiver and the Jennings Hytor suction centrifugal pump. Engineers have been assigned to answer questions concerning the use of compressed air and gas, the handling of liquids under pressure or vacuum and filtration, agitation and suction problems. Irving C. Jennings, vice-president, is supervising the exhibit, and associated with him are:—Howard M. Wylie, general sales manager; G. B. Wright, advertising manager, and R. H. Carpenter, manager of the New York office.

The Nitrogen Corporation, Providence, R. I., Booth 517

Products of ammonia made from atmospheric nitrogen are here gathered for the attention of visitors. They are manufacturers of synthetic ammonia, and furnish plants for the installation of their process of utilization of waste hydrogen wherever it occurs. A. Nagelvoort and J. C. Clancy are in charge of the exhibit.

Nassau Valve & Pump Corp., Rockville Center, N. Y., Booth 922

Chemetal centrifugal pumps are demonstrated here, they being placed in operation to afford an opportunity to the manufacturer to see what can be done. Chemetal acid resisting valves and centrifugal pumps are shown. A. T. Haviland, E. M. J. Figel and C. Schmitt have been assigned to explain the processes.

National Aniline & Chemical Co., Inc., New York City, Booths, 412, 414, 416, 418

A working unit of a colorists laboratory is here featured, together with coal-tar dye intermediates and dyes, and commodities on which they are employed. The commodities include textile, leather and paper. The progress made by the American dyestuffs industry is brought to the attention of the visitor, with special emphasis given to National products. The setting of this display is Egyptian in design, embellished with ornamentation. A frieze in several panels portrays Egyptian workmen engaged in some of the operations of the tinctorial arts. Dr. Louis Matos of the technical staff is in charge of the exhibit. He is assisted by the following gentlemen:—S. W. and A. E. Wood, F. W. Allen, W. R. Moorehouse, W. W. Rowse, W. H. Willard, F. J. Gainey, C. C. Knights, H. J. Daigneault and others.

National Binding Machine Co., New York City, Booths 847, 849

The National Top and Bottom Sealing Machine for sealing, with silicate of soda, fiber and corrugated boxes focus attention to this display. One of the machines has a capacity of 2,500 to 5,000 cases a day. T. R. Gautier is in charge of the exhibit. Other representatives are:—A. E. Rideout, M. McFaull and G. A. Coffin.

National Filter Cloth & Weaving Co., Brooklyn, N. Y., Booth 66

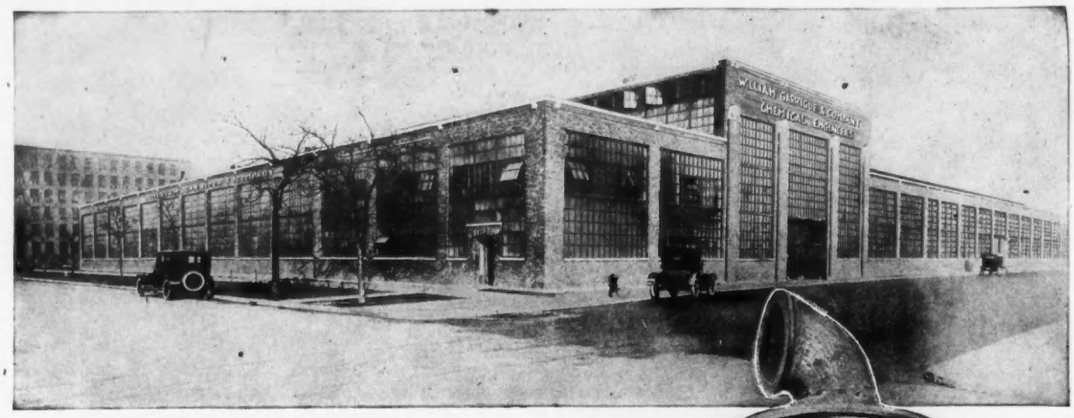
This booth, occupied by manufacturers of a cotton filter cloth, is an object of interest. The weaves are of standard sort, and some of the company's specialties are manufactured for individual requirements. M. W. Smith is representative in charge, assisted by Thomas Dunn, L. R. Prior and Edw. Boffin.

National Gum & Mica Co., New York City, Booths 23, 24

The manufacturers have placed on display a number of well-known products. They are gum, adhesive, glue, paste and sizings. Also pulp colors and fur dyes. Eli D. Cohen has charge of the exhibit, and is assisted by A. Alexander, W. Alexander, F. Greenwald, N. A. McManus, S. Ginsburg and M. Kieban.

National Lime Association, Washington, D. C., Booth 745

The production of lime and its multiform uses are shown. M. E. Holmes is in charge with the assistance of Messrs. Tipping, Wink and Fraser.



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PLANT
Chicago, Illinois

National Rosin Oil and Size Co., New York City, Booth 810

An admirable display of rosin oil and rosin pitches may be inspected. Richard Bender has charge of the booth and is being helped by W. Lathrop.

New Jersey Zinc Co., New York City, Booth 521

The central display is a flow sheet showing the path of zinc from the ore state to the finished product. A line of the company's products on exhibition included:—Zinc oxide, zinc chloridem, various zinc saltem, slab zinc, rolled zinc, zinc dust, spiegeleisin, albalith and sulphuric acid. The information service at the booth is directed by W. Homer Hendricks. The corps on hand include:—E. V. Peters, Bushnell Biglow, F. C. Fuller, C. A. Stedman, F. C. Ryan, S. T. Ballinger.

Newport Chemical Works, Passaic, N. J., Booths 706, 708, 710

Samples and processes in the line of the company's dyestuffs, dye and intermediates production are displayed. An able staff of company representatives will be found on hand to receive those interested in the products presented.

New York Continental Jewell Filtration Co., Nutley, N. J., Booth 802

A model filtration plant applicable to the problems of swimming pools forms the feature display. By the system of refiltration involved, the pool may be kept pure and clear for weeks without emptying. Chemical feeding devices and a model municipal filtration plant can also be seen. Arthur M. Crane, E. K. Screenson and D. C. Williamson, officers of the company, may be consulted at the booth.

Niagara Alkali Co., New York City, Booth 410

The products of this company are prominently displayed. They include samples of caustic soda, caustic potash, bleaching powder and muriatic acid. An efficient staff of company representatives are on hand at all times to receive visitors at the exhibit.

Nichols Copper Co., New York City, Booth 402

The use of Bordeaux mixture made from products of this company is emphasized by a feature display of fruits and vegetables contained in a bowl made entirely of copper sulphate crystals and the whole resting on a pedestal of the same material. A general line of copper products such as wire, bars and cakes, copper oxide and copper sulphate in crystal, powder and dehydrated forms completes the exhibit. G. P. Hitchcock and a corps of company representatives are on hand to give information at the booth.

O

The S. Obermayer Co., Chicago, Ill., Booth 524

displays Hott-Patch furnace cement, a patented material sold in dry form. An electric furnace is used to heat small cubes of this cement under high temperatures and a process followed to show that it will not crack under immediate cooling. F. P. Bullion is in charge, assisted by E. D. Frohman, H. E. Beckman, J. M. Hildebrand and W. R. Cummings.

Oliver Continuous Filter Co., New York City, Booth 321

exhibits Oliver Continuous Filters and accessories, featuring a complete Oliver unit shown in operation and demonstrating its simplicity and efficiency. H. A. Morrison is in charge, aided by C. T. Eastman, C. W. Moore and L. W. Knapp.

P

Palo Company, New York City, Booth 228

displays apparatus for laboratory and industrial uses. Features Hess-Ives Tint Photometer; makes high and low temperature furnaces for heat treating, annealing and fusion purposes. M. J. Seavy is in charge of exhibit, assisted by L. Pfulger and H. Peterson.

Parks Cramer Co., Fitchburg, Mass., Booth 536

has a complete system for "Industrial Heating by Oil Circulation," capacity 250,000 b. t. u. per hour. Air Conditioning Equipment, heat and humidity regulator, high duty motor-driven humidifying head. In charge of exhibit:—Alexander B. McKechnie and Frank G. Bell, assisted by Thayer Francis, J. W. F. Macdonald, Stuart W. Caldwell, A. A. Thompson.

Paper Mill & Wood Pulp News, New York City, Booth 147

exhibits copies of "the paper mill" and data concerning the pulp and paper industry. Features of the exhibit are paper suits and other unique uses of the pulp and paper industry. Representative in charge of exhibit is L. D. Post.

Penn. Salt Mfg. Co., Philadelphia, Pa., Booth 715

showing the following products:—Table No. 1—Natrona porous alum, crushed excelsior alum, ground excelsior alum, crushed sulphate of alumina (iron free), ground sulphate of alumina (iron free), crystal ammonia alum, ground ammonia alum, alumina hydrate, alumina calcined. Table No. 2—Caustic Soda (76% electrolytic), caustic soda (60% electrolytic), Natrona bi-carb soda, crystal sal soda, glass makers salt cake, salt, bleach (chlorinated lime), sodium aluminate compound. Table No. 3—Red ore (for gas purification), coperas, nodulized iron ore, purple ore, mineralized sponge, zirconia, silumina, hypochlorite of soda. Table No. 4—Fuming sulphuric acid "oleum," sulphuric acid 66° Be., nitric acid, acetic acid, glacial acetic acid, mixed acid, alumina chloride (liquid and crystals), zinc chloride, muriatic acid. Table No. 5—Lump Greenland kryolith, ground Greenland kryolith, kryolith as mined. Table No. 6—Hyposulphite of soda, lye, pyrites.

Permutit Co., New York, Booth 325

exhibiting Zeolite water softeners, intermittent lime-soda-ash water softeners, continuous lime-soda-ash water softeners, heater lime-soda-ash water softeners, lime-barium softeners, filters for clarifying water, oil removal filters, chlorine removal filters, mechanical and chemical iron and manganese removal equipment, zeolite iron and manganese removal filters. The principal and most interesting feature of the Permutit Company's exhibit will be a model of water softening and filtering equipment about four feet long and made exactly to scale after the design of a large unit that delivers 100,000 gallons per day. Representatives attending the exposition are A. T. Smith, manager of sales; R. E. Epple, J. S. Shedden, G. E. Boyd, A. A. Jackson and E. J. Saunders.

Perry & Webster, Inc., New York City, Booth 61

has consulting and designing engineers at this booth, who display plans of varnish plants. R. S. Perry and P. W. Webster are in charge.

Pfauder Co., Rochester, N. Y., Booth 719

exhibits standard glass lined closed jacketed mixer (furnished with an enameled steel agitator) which is extensively used in the manufacture of raw chemicals, dyes, printing inks, coal-tar products, etc. Standard glass lined open tank, which is generally used for temporary storage and general holding purposes. Also various fittings and accessories such as observation glasses, enameled agitators, reducing ells, etc., and photographs of various installations which have recently been completed in the field and which will not only cover the strictly chemical industry, but also such allied trades as the perfume, cosmetic, soap, food and textile industries. Representative in charge of exhibit J. A. Cowles, assisted by R. S. Kilmer, I. E. Colvin, J. A. Cowles, P. S. Barnes, F. J. Bresnan, T. D. Wilson.

Philadelphia Drying Machinery Co., Philadelphia, Pa., Booth 237

exhibits chemical dryers. Features of the exhibit are models, photo display case, Standard "Hurricane" Tray Dryer. Representative in charge of exhibit W. W. Sibson, secretary and treasurer, assisted by W. W. Sibson.

Philadelphia Quartz Co., Philadelphia, Pa., Booth 703

exhibits silicate of soda in its various forms, and typical uses of silicate. Representative in charge of exhibit is R. C. Brown, aided by W. H. Buxton, A. W. Moore and others.

Pittsburgh-Des Moines Steel Co., Pittsburgh, Pa., Booth 54

displays photographs and drawings of steel tanks and structures built for the chemical trade. I. A. Bickelhaupt is in charge, with J. E. O'Leary, New York; S. E. Andrews, Washington, D. C.

Pneumercator Co., New York City, Booths 230 and 232

shows Pneumercator tank gauges for the measurement of stored liquids and the determination of specific gravities. In charge of exhibit:—William Thomas, sales engineer, with Gardner Cornett, Harry S. Parks, Howard L. Snider, William Thomas.

Power Specialty Co., New York City, Booth 705

exhibits Foster superheaters for steam, oil, air and various chemical liquids and gases. Foster economizers for power plant installations. In the booth they exhibit a superheater of the portable type, which is not only small enough to be easily installed, but is large enough in capacity to have a wide commercial use. In charge of exhibit:—Robert H. Wyld, assisted by Alexander Bradley, Walter F. Keenan, Harold Wooley, P. W. Foster, Jr.

Powhatan Mining Co., Baltimore, Md., Booth 512

exhibits Powminco asbestos. Features are Powminco asbestos completely fiberized; also chart showing the various stages of manufacture, together with analysis. Samples of raw material and finished product will also be on display. Demonstrations showing the purity of Powminco asbestos. Representative in charge of exhibit:—Fred A. Mett, with Frank Mett, Joseph A. Bauhaus.

Precision Instrument Co., Newark, N. J., Booth 134

exhibits CO_2 recorders, draft gauges, indicating and recording 3-in-1 gauges, indicating and recording calorgraph, gravitometer, Orsat recording gauges 2-in-1, 4-in-1, 5-in-1, differential gauges. Representative in charge of exhibit:—E. C. Rack, with D. D. Vorce, R. H. Tilghman, H. G. Kincaid, C. Boedeire.

Proctor & Schwartz, Inc., Philadelphia, Pa., Booths 220, 224, 226

shows model of Proctor four truck dryer for colors, chemicals, etc.; model of Proctor three conveyor dryer for raw stock, soap, etc.; Proctor sixteen tray dryer, electrically heated; Proctor dryer for sanitary ware. Features are new type of drying machine for sanitary ware; exhibition (for first time) of laboratory dryer, electrically heated. A large rest room for the convenience of visitors. Display of all kinds of materials dried in Proctor dryers. Representatives in charge of exhibit:—E. B. Ayres, vice-president, and H. S. Landell, D. D. Hollenbaugh, New York office; A. O. Hurxthal, H. E. Kantner, Mrs. A. E. Reiter, Philadelphia office.

Provost Engineering Corp., New York City, Booth 537

exhibits mixers. Representatives in charge of exhibit:—H. F. Klenfeldt, C. A. Beach, H. C. Russ and A. T. Beach, Jr.

Pyrolectric Instrument Co., Trenton, N. J., Booth 58

displays pyrometers, electrical precision instruments, hydrogen-ion apparatus. In charge of exhibit is W. C. Harter and H. L. Saums.

Q

Quigley Furnace Specialties Co., New York City, Booth 620

exhibits hytempite, carbosand, insulbrix insuline products, Quigley powdered coal system. Features are samples of products and uses.

R

Raritan Copper Works, Perth Amboy, N. J., Booths 320, 322 and 324

This exhibit illustrates the smelting and refining of copper starting from the ore and following the various processes to the refined copper, and to the copper wire now manufactured by the company. The valuable by-products, metals and chemicals obtained by the electrolytic refining of copper are shown. A new development of this year's exhibit is a display of manufactured copper products, illustrating how the various properties of copper, such as electrical conductivity, heat conductivity, malleability, ductility are made of in the industrial arts. An extensive display is also made of Anaconda white lead, made by an electrolytic process, showing its superiority over the white lead made by the older methods of manufacture. Anaconda Fertilizer, the treble superphosphate, containing 48 per cent. P_2O_5 and the latest product of the company is shown. S. Skowronski and J. A. Dowdy are in charge of the exhibit.

Raymond Bros. Impact Pulverizing Co., Chicago, Ill., Booth 534

exhibits models of roller mills and automatic pulverizers equipped with air separation and in actual operation, grinding materials to powder. Representative in charge of exhibit:—C. M. Lauritzen, vice-president, aided by W. M. Cook, S. B. Kanowitz, Joe Crites.

Refinite Co., Omaha, Neb., Booth 210

displays model of the Refinite water softener, household style, which will deliver soft water. Model of industrial style Refinite water softener and a model of the Booth lime soda water softener. Refinite mineral in various stages of processing are shown, and attractive souvenirs distributed to callers at this exhibit. Representative in charge:—C. R. Travis, district manager Eastern District, with headquarters at New York; with R. K. Turner, W. E. Titus, N. S. Cooke, L. M. Smith, Miss Dolejs.

Rhodia Chemical Company, New York, Booth 209

exhibiting Technical, Medicinal and Photographic Chemicals, with A. C. Robertson in charge, and Dr. Max Mueller, Dr. R. C. Lyon, Charles F. Kelly, J. A. Buechler, Dr. A. Zimmerli and G. A. Hickerson also present.

Roessler-Hasslacher Chemical Co., New York City, Booths 400 and 501

exhibits about 100 chemicals, cyanides, metal oxides, peroxides, solvents, electroplating chemicals, ceramic chemicals, bleaching and oxidizing agents, insecticides, fugicides, case-hardener and steel temperer and chemicals used in soap making, tanning, rubber industry, hydrogenation, fireworks, fire-proofing, etc., etc. In charge of exhibit:—Herbert Gillis, Sterling Temple, M. S. Stewart, T. V. Ainslee, Dr. F. Abegg, C. S. Williams.

Ruggles Coles Engr. Co., New York City, Booth 69

exhibits working model of dryer, together with photographs, literature, etc., of all the various types of dryers they manufacture. In charge of exhibit:—F. E. Finch, with J. K. Towers, W. H. Glomb.

S

Salmon Falls Mfg. Co., Boston, Mass., Booth 835

Toron-treated fabrics are featured in this booth. The fabrics treated are those for use in manufacture of articles in which cotton goods and rubber are component parts. Finished goods in which the process was used are displayed. Company representatives are to be found at the booth.

Sarco Co., New York City, Booth 332

Working units of Sarco temperature regulators doing actual control work provide the center of attraction in the display. Sections of the regulators are also to be seen, and the Sarco steam traps, radiator and blast traps, strainers and recording gas calorimeters. The exhibit is under direction of C. Wells and E. J. Ritchie. Other representatives at the booth are Messrs. Barfus, Burke, Cordner, Minor, Mooreman, F. C. Perkins and J. E. Perkins.

Schwartz Sectional System, Indianapolis, Ind., Booth 814

Sectional filing cabinets and auxiliary desks for chemical laboratories covering many styles and uses are on view. M. P. Schwartz is at the booth.

The Schaeffer & Budenberg Mfg. Co., Brooklyn, N. Y., Booth 635

A complete exhibit showing the company's entire line of efficiency promoting instruments may be inspected. Special mention may be made of the presentation of indicating and recording gauges, thermometers, counters, tachometers and calorimeters. The space is under the direction of Messrs. Undeutch and Campbell.

Scientific Equipment Co., New York City, Booth 735

A representative line of American-made specialties in the line of laboratory apparatus may be seen here. Emphasis is laid on a line of laboratory furniture designed for research and control laboratories. The tables are furnished with black acid proof wooden and stone tops. The wooden tables have the Kewaunee patented automatic spring bolt construction. The following employes of the company may be consulted at the booth: S. L. Redman, J. M. Roberts, A. B. Carter, Charles G. Campbell, O. T. Louis, Charles Ress, Edward Breitweisser, Joseph Fisher, Theodore Fuchs, Jr., and Alfred Von Hoveling.

Ernest Scott & Co., Fall River, Mass., Booth 304

Photographic illustrations show many installations where the products of this company are reclaiming chemicals from factory waste liquor, deposits, etc. Such photographs include vacuum evaporation recovery work in the soap trade, paper mills, cotton finishers, glue and gelatine trades, caustic soda manufacturers, distilled water manufacturers and packing houses. The use of vacuum dryers in the food, paint, salt and other trades may also be seen. Apparatus for solvent extraction used by oil manufacturers, ammonia stills and wood distillation plants have received photographic presentation. Messrs. Austin, MacGregor and Bradley are on hand to receive interested visitors.

Semet-Solvay Co., Syracuse, N. Y., Booth 424

In this space is presented the combined display of the Semet-Solvay and the Solvay Process Co. The feature of the exhibit is two-fold: (1) Semet-Solvay By-Product Coke Oven (2) Solvay granulated calcium chloride as a natural dust-layer and binder for roads, tennis courts, playgrounds, etc. There is also a presentation of the various commodities which the company produces, including solid and flake calcium chloride, salt, phenol, benzyl chloride, benzaldehyde, ammonium sulphate, ammonium chloride, ammonium hydroxide, ammonium bicarbonate, yellow prussiate of soda, salicylic acid, methyl salicylate, toluol, benzol, solvent naptha, anhydrous calcium chloride, sodium nitrite, etc. The combined exhibit is under the direction of E. C. Scott, who at all times will have a force of engineers, chemists and salesmen from whom the interested visitor may secure information.

Seydell Mfg. Co., Jersey City, N. J., Booth 433

Samples of absolutely chlorine free benzoic acid and soda benzoate and a complete line of medicinal benzoates and other products form the center part of an extensive presentation of the company's products. The line of Furamine fur dyes may also be seen. Edmund E. Smith represents the company at the booth.

Seymour & Peck Co., Chicago, Ill., Booth 10

Wooden shipping drums form the leading presentation of this company. A feature is being made of sift-proof packages for dry chemicals. C. E. Warren, president of the company is in charge.

Sharples Specialty Co., West Chester, Pa., Booth 406

An instructive display of Sharples super centrifuges and super centrifugal processes is enforced by a feature exhibition of the Sharples high speed super centrifuges. Max B. Miller is being assisted by Homer Cloukey, Aldus Wilbur and Eugene E. Ayres in enlightening interested visitors as to the uses and processes to which the company's products may be put.

The Sherwin-William Co., Cleveland, Ohio, Booths 336 and 338

This year the company's display includes paints, varnishes and insecticides in addition to other commodities such as dyes, chemicals and coal-tar products for which the concern is known. All manufactured products will be displayed in connection with illustrative samples of the entire processes from raw material to finished production. The feature of the presentation is a large background display and color schemes of blue, orange and black painted and decorated entirely

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AMMONIUM CHLORIDE
AMMONIUM SULPHO-CYANIDE
AMMONIUM PHOSPHATE
AMMONIUM FLUORIDE
BARIUM CARBONATE, 98/100%, Precipitated,
BARIUM CHLORIDE, White crystals
BARIUM HYDRATE
BARIUM SULPHO-CYANIDE
CHROME ALUM (Potash)
CHLOROFORM, U. S. P.
COPPERAS
CREAM OF TARTAR
FORMIC ACID, 90%
GLAUBER SALT
IRON CHLORIDE, Crystals C. P.
LEAD ACETATE, White crystals
NICKEL SALTS
PHOSPHORIC ACID, All kinds
POTASSIUM ACETATE
POTASSIUM BICARBONATE
POTASSIUM BICHROMATE
POTASSIUM BROMIDE
POTASSIUM CARBONATE, All strengths up to 99.75% C. P.
POTASSIUM CAUSTIC
POTASSIUM CHLORATE
POTASSIUM CYANIDE
POTASSIUM FERRICYANIDE
POTASSIUM FERROCYANIDE
POTASSIUM METABISULPHITE
POTASSIUM NITRATE
POTASSIUM PERMANGANATE
POTASSIUM SULPHIDE (Liver of Sulphur)
POTASSIUM SULPHO-CYANIDE
ROCHELLE SALTS
SODIUM BROMIDE
SODIUM BICARBONATE
SODIUM BISULPHITE, 60/62%, Powdered
SODIUM CARBONATE, Anhydrous
SODIUM CHLORATE
SODIUM CYANIDE
SODIUM FLUORIDE
SODIUM HYPOSULPHITE, Pea crystals, large crystals and granular
SODIUM NITRITE
SODIUM SULPHIDE
SODIUM SULPHITE, Anhydrous
SODIUM SULPHO-CYANIDE
TARTARIC ACID
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ZINC CHLORIDE, Fused and Granular
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ZINC CARBONATE, Free, technical and U. S. P.

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with Sherwin-Williams finishes. Richard Rychtarik, artist and designer for the company, is responsible for this feature. The following representatives of the company may be found at the booths: A. W. Steudel, J. O. Hasson, L. D. Walker, W. F. Prescott, B. M. Van Cleve, W. R. McIntosh, Fred Wills, A. J. Binder, M. K. Barrett, R. V. Brown and C. E. Buchanan.

T. Shriver & Co., Harrison, N. J., Booths 842-844-846

Typical filter presses with many and diverse improvements are presented. R. E. Perry and E. C. Alford are glad to supply information at the booths.

W. W. Sly Manufacturing Co., Cleveland, Ohio, Booth 700

The company manufactures a line of pneumatic handling and dust collection equipment. A feature is made of equipment intended for pneumatic separation and collection of various grades of materials. E. J. Moore is in charge, assisted by D. E. Hadley and M. M. Lowrie.

Snyderfiba Corp., Newark, N. J., Booths 903 *and* 905

Samples of patent paper drums and barrels in all sizes and intended for use with dry chemicals may be seen. As an added feature to the exhibit, a Synderfiba barrel machine in operation is shown winding packages. Charles Ashmun and Oscar Dyrea are glad to explain the products at the booth.

Southern Cotton Oil Co., New York, Booth 639

shows by-products of the cottonseed industry, such as soap making materials, cup grease base, paints, cotton linters cake and meal for cattle feeding, fertilizer, and paints.

Southern Railway System, Washington, D. C., Booths 649 *and* 651

Exhibition consists of geological and chemical resources of the territory served by the Southern Railway System in the States of Virginia, North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, Louisiana, Kentucky, Tennessee, Indiana and Illinois. Z. P. Smith, industrial agent for the company at Washngton, is in charge.

Sowers Manufactaring Co., Buffalo, N. Y., Booth 334

shows Dopp seamless jacketed kettles, mixers, vacuum pans, soap crutchers, etc., and especially various agitators in operation, along with products made in Dopp equipment. The firm is represented at the exposition by R. C. Boggess.

Starr Corrugated Box Co., Inc. New York, Booth 638

Exhibits printed boxes in one and two colors, showing the manner in which the shipping case is tied up with the national advertising campaign of the manufacturer. Corrugated fibre shipping cases will be displayed prominently. The booth is taken care of by I. and L. Etra and F. S. Oppenheim.

Stein, Hall and Co., Inc., New York, Booth 404

displays starches and starch products, including dextrines for general uses and also special for laundries, textile and carpet mills. Oxalic acid also is featured, of AAA brand, extensively employed by laundries and textile industries and in the manufacture of chemicals and dyestuffs. The company is represented by L. W. Peabody.

Stimpson Equipment Co., Salt Lake City, Utah, Booth 618

displays the Mitchell electric vibrating screen. In charge is Clinton Clark.

Stuart and Peterson Co., Burlington, N. J., Booth 921

Steam jacketed kettles, vacuum stills, evaporating dishes and kettles and autoclaves comprise the display. Representatives of the company at the exposition are H. E. Jacoby and F. P. Kearns.

Sturtevant Mill Co., Boston, Mass., Booths 730 *and* 732

Among the exhibits by this company are machinery for crushing, grinding, pulverizing, screening, mixing, elevating, conveying, etc. The eastern sales manager, J. S. Vrabek, is in charge.

Sullivan Machinery Co., Chicago, Ill., Booth 629

The feature of this exhibit is a Sullivan pneumatic displacement pump in operation; other Sullivan air lift pumping equipment is shown. John Oliphant represents the company.

C. G. Tagliabue Manufacturing Co., Brooklyn, N. Y., Booth 531

displays an automatic humidity controller, and various other testing and registering struments, such as thermometers, hydrometers, automatic controllers for temperature, pressure, vacuum condensation, liquid level and humidity; oil testing instruments. In charge is T. Dougherty.

Takamine Laboratory, Inc., New York, Booth 508

Products of the laboratory are shown. These include polyzime, hirathol and takamine cattle food. Polyzime is a product used in textile, jelly, bread and cheese industries. A test of polyzime in its relation to different industries will be given during the sessions. J. W. Coleman, Jr., will represent the concern.

Taylor Instrument Companies, Rochester, N. Y., Booth 507

Exhibit laboratory thermometers, indicating and recording thermometers, temperature controls, pyrometers, hydrometers and barometers. Features are detail of steps in construction of laboratory thermometers and hydrometers from raw glass to the finished instrument. Representative in charge of exhibt, E. N. Hurlburt, with J. W. Schwartz, F. E. Ely, J. P. Gilmore, W. N. Manser.

Texas Gulf Sulphur Co., New York City, Booth 307

displays crude sulphur or brimstone. Representative in charge of exhibit H. R. Wempel, A. S. Cosler, E. C. Meagher and Dr. H. S. Davis.

Textile Colorist, Philadelphia, Pa., Booth 64

exhibit a complete set of bound volumes of the Textile Colorist since its first issue in 1879. A complete collection of books relating to dyeing, printing, finishing and bleaching and cleaning relating to these subjects. In charge of exhibit J. E. Frank, manager, and H. S. Neiman, editor; S. M. Waream.

Textile World, New York City, Booth 834

displays The Textile World, official American Textile Directory, American Directory of the Knitting Trade, Directory of Textile Merchandise, Technical Books. In charge of exhibit:—R. T. O'Connell; also H. G. Lord, president; J. H. Bragdon, treasurer; H. O. Barnes, secretary; W. E. Carroll, editor.

Thermo Electric Inst. Co., Newark, N. J., Booth 615

exhibits Freas and Thelco ovens, incubators, water baths, etc., for laboratory requirements. Features are Freas special laboratory apparatus. Representatives in charge of exhibit:—Royal B. Freas and Edwin G. Price, with Dr. Thos. B. Freas and V. Weber.

Thermal Syndicate Ltd., New York City, Booth 306

exhibits Vitreosil (fused pure silica) in transparent, translucent and opaque qualities for laboratory and plant. Features are new type of distillation unit, new type of absorption vessel. In charge of exhibit:—William W. Winship; also S. L. Tyler, W. E. Strevig, F. A. Wenman.

Thwing Instrument Co., Philadelphia, Pa., Booth 910

displays indicating and recording electrical pyrometers and accessories, Elmendorf tearing testers, basis weight paper scales. In charge of exhibit:—H. K. Walton, J. H. Torrey, Dr. C. B. Thwing, aided by Edward J. Albert, A. S. Hall.

Tolhurst Machine Works, Troy, N. Y., Booths 428, 430, 432

exhibits centrifugal extractors of various sizes and types which are standards in the chemical industry for the removal of excess surface moisture from crystals, sludges, fibers, etc. In charge of exhibit:—W. C. Dutton, vice-president, assisted by T. A. Bryson, chief engineer; R. K. Cheney, sales manager; John S. Gage, Western representative; T. M. Stuart.

W. S. Tyler & Co., Cleveland, O., Booths 543, 545

shows Hum-mer electric screen, Tyler double crimped wire cloth and screen, Ro-Tap testing sieve shaker, Tyler standard screen scale testing sieve.

U

Uehling Instrument Co., New York City, Booth 60

exhibits boiler room instruments such as carbon dioxide (CO_2) recorders, recording and indicating draft gauges, vacuum recording gauges, absolute pressure indicators, etc. Features of the exhibit are CO_2 recording equipment for saving fuel by insuring correct air supply. This equipment furnishes a continuous indication of CO_2 for the fireman while simultaneously making a record in the chief engineer's office. It employs no chemical solutions. In charge of exhibit:—F. F. Uehling, C. C. Phelps, C. J. Schmid, R. E. Terhune. Other representatives who will attend the exposition:—W. J. Reilly, H. D. Thomas, F. D. Bogia, W. C. Lange, L. M. Sheridan.

Union Steam Pump Co., Battle Creek, Mich., Booths 739 *and* 741

has a full line of pumping equipment covering practically all of the pumping requirements of the chemical industry, and the exhibit consists principally of Union pumps embracing Simplex, Duplex and Triplex types of both steam and power-driven design. They also feature a line of condensers and condenser pumps. Centrifugal pumps also comprise a part of the exhibit and they also show air compressors. H. D. Smith, manager of sales, is in charge.

Union Sulphur Co., New York City, Booth 614

exhibits crude sulphur or brimstone. Representatives at the exposition are W. N. Wilkinson, W. M. P. Taylor.

United Filters Co., New York City, Booth 120

displays American continuous vacuum filter, Sweetland self-dumping pressure filter, United plate and frame filter press. Features of the exhibit are single disc from a large American continuous vacuum filter, showing the latest type of wooden construction and also the roller cake dischargers and rotary control valve from this filter. In charge of exhibit Robert C. Campbell. Representatives at the exposition—E. J. Sweetland, L. D. Thompson, C. M. Stanley.

United Lead Co., New York City, Booth 314

exhibits "United" line products, consisting of chemical lead and block tin lined and covered pipe, valves, fittings, tanks, acid drums and special apparatus, agitators, hard lead and tin lined centrifugal acid pumps. Features of the exhibit are "United" Acid Resisting Products. George H. Checkley is in charge. Other representatives at booth are J. W. Spotten, C. R. Andrews, H. F. Hempel, C. L. Myer, W. J. Donnan and H. F. Freiherr.

U. S. Cast Iron Pipes & Fdry. Co., Philadelphia, Pa., Booth 310

shows details of the manufacture of cast iron pipe and large castings. Features of the exhibit are actual section of flange pipe as manufactured by Stein; Model, Helander Barometric Condenser; pictures showing the history of cast iron pipe and showing modern methods of production. In charge of exhibit H. A. Hoffer. Representatives at the exposition—J. D. Capron and C. D. Donaldson.

U. S. Industrial Alcohol Co., New York City, Booth 520 *and* 522

exhibit ethyl alcohol, U.S.P., ethyl alcohol, U. S. Government specifications, ethyl alcohol, all grades of specially and completely denatured alcohol; Alcorub; ethyl ether, distilled iodine, tincture of iodine, potash materials, potassium iodine, ethylene, absolute alcohol denatured, ammonia salts, carbon dioxide, ether for anaesthesia, ether, commercial; mixed fertilizers; diethyl carbonate; ethyl bensoate, ethyl mutyrate, ethyl cyanide, ethyl formate, ethyl fumarate in charge. Other representatives at booth are J. W. Spotten, C. R. Andrews, H. F. Hempel, C. L. Myer, W. J. Donnan and H. F. Freiherr. ethyl isovalerate, ethyl lactate, ethyl malate, ethyl maleate, ethyl monochloracetate, ethyl oxalate, ethyl propionate, ethyl salicylate, iso amyl acetate, iso amyl formate, iso amyl isovalerate, iso amyl propionate, iso butyl acetate, iso butyl butyrate, iso butyl formate, iso butyl isovalerate, iso butyl propionate, iso propyl oxalate, methyl formate, normal propyl acetate, normal propyl isovalerate, normal propyl n-butyrate, normal propyl propionate. Features of the exhibit are Alcorub and new products, such as ethyl ether, iodine,, distilled and tincture of and all esters, with Diethyl carbonate through normal propyl propionate. In charge of exhibit, B. R. Tunison.

D. Van Nostrand Co., New York City, Booth 25 *and* 26

exhibits scientific and technical books. Features of the exhibit are recent issues of chemical books. In charge of exhibit E. M. Crane. Other representatives at the exposition—H. Mansfield and A. Y. Heany.

Vitreous Enameling Co., Cleveland, Ohio, Booth 622

displays Vitreous enameled pans and trays for drying drugs, food stuffs, chemicals, etc. Charles E. Bullard is in charge. Other representatives at the exposition—Harry Warman, sales manager; Edgar H. Weil, secretary.

Voland & Sons, Inc., New Rochelle, N. Y., Booth 804

exhibits balances and weight of precision. Features of the exhibit are Modern Improved Instruments. In charge of exhibit are George G. Voland, Emil L. Voland. Other representatives at the exposition are Harry C. Henn, George J. Brentano, John H. Schwab and John Kistinger.

W

Wailes-Dove Hermiston Co., New York City, Booth 53

exhibits bitumastic and hermastic protective paints and coatings as applied to chemical industries. Representatives at the exposition are W. T. Chevalier and R. B. Nisbet.

Wallace & Tiernan Co., New York City, Booths 202 *and* 303

shows chlorine control equipment for the sterilization of water, sewage and tannery waste, the manufacture of bleaching solutions in paper, pulp and textile mills, the maturing of flour. Dry feed equipment for heavy chemicals and special gas control equipment for the chemical industry. Features are units of equipment shown operating to illustrate the accurate control and remarkable efficiency of chlorine gas. In charge of exhibit W. J. Orchard, general sales manager. Other representatives at the exposition are M. F. Tiernan, president; L. H. Goebel, R. V. Donnelly, R. V. Henkel, G. D. Peet, Dr. J. C. Baker.

Westinghouse Elec. & Mnfg. Co., Pittsburgh, Pa., Booth 801

shows Westinghouse motors and control for the chemical industry, arc furnace regulating and control equipment, safety switches, battery charging equipment, industrial lighting, etc. Features of the exhibit are the main control and regulation of electric arc furnaces for steel refining. In addition to this, special insulation and moisture proof coils will be shown. In charge of exhibit, G. H. Jaspert. Other representatives at the exposition, C. B. Gibson, manager of Metal Mines Section, Industrial Department; C. G. Schluederberg, assistant to manager, Supply Department, and L. A. S. Wood, manager Ill. Sec. Supply Department.

C. H. Wheeler Mnfg. Co., Philadelphia, Pa., Booth 225

displays Radajet vacuum pumps used in chemical industries, for extraction of air, in evaporating processes. In charge of exhibit C. Lang, Mr. Mullen and Mr. Dobson. Others at booth are C. H. Wheeler, Jr., C. H. Wheeler, Sr.

Wheeler Condenser & Engineering Co., Carteret, N. J., Booths 547 *and* 549

showing evaporators, condensers, circulating pumps, Edwards air pumps, steam jet air pumps, cooling towers and brass and copper tubes. R. T. Ervin has charge, assisted by E. R. Goodrich, F. H. Schubert, R. D. Spear, J. L. Kretzmer, E. H. Chapin.

Whitall-Tatum Co., New York City, Booth 704

shows glassware and rubberware, featuring "Nonsol" chemical glassware. Also glassware and rubberware showing process of manufacturing from crude materials to finished product. In charge of exhibit W. W. Figgs and E. T. M. Cane.

Whitlock Coil Pipe Co., Hartford, Conn., Booths 6 *and* 7

exhibits coils made up of iron, steel, copper, brass, aluminum, etc., pipe and tubing for all kinds of process work. Heat transfer apparatus, such as solvent recovery heaters, coolers, etc., hot water heaters, feed water heaters, high pressure piping. Features are hot water heater taking exhaust from engine, condensing in heater and return to boiler, also sample bends, coils, etc. In charge of exhibit William A. Evans; others at the exposition are William A. Evans, F. J. Brengel, C. I. Babcock, W. C. Beekley, W. H. Ripley, H. J. Anderson.

Willson Goggles, Inc., Reading, Pa., Booths 19 *and* 20

shows the "Dustite" respirator and Willson safety goggles. Features are approved protective devices against poisonous and irritating dust hazards. The "Dustite" respirator has received the approval of State Departments of Pennsylvania and New York, and of the Underwriters' Laboratories. In charge of exhibit F. M. Rockwell. Other representatives at the exposition are T. A. Willson, William Wortman.

Jacques Wolf & Co., Passaic, N. J., Booths 828-830-832

exhibits various specialties, such as sizing and finishing materials, colors and mordants for fabric printing, hydrosulphite for discharge printing and stripping, textile gums for printing and finishing soluble oils, Monopole Oil (Reg. Trade Mark No. 70991). Featuring an exhibit of silk, cotton and woolen fabrics printed and finished with their chemicals. In charge of exhbiit Schuyler E. Tylee, Jr., secretary. Others who are at the exposition are members of the sales force and chemists.

Young Bros. Co., Detroit, Mich., Booth 815

shows truck type oven, 5 ft. 2 in. wide x 8 ft. 0 in. deep x 6 ft. 10 in. high, suitable for japanning or general drying or baking processes, with mechanical combination exhaust and recirculating system, electric heat and control, but can be adapted to other fuels. Small laboratory test oven, electrically heated, containing a wide range of temperature controls. In charge of exhibit R. B. Reed, sales manager. Other representatives at the exposition are V. A. Fox, G. G. Parry, T. P. McVicker, A. H. Ackermann, J. E. Randall, E. F. Oates and Geo. A. Young.

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Genasco Vulcanite Mastic

Especially adapted for use in chemical plants, textile and dye establishments and other industries where a durable, acid proof and water proof material is required for flooring, tank or reservoir lining, pipe coating and other purposes.

Floors

Genasco Vulcanite Mastic floors will withstand strong solutions of acids and heavy trucking and traffic. They are dustless and, being laid in a monolithic sheet, afford no cracks or crevices for dirt or germs to collect. They can be flushed clean with water. Genasco Mastic floors can be laid over old floors of any substantial surface, and are ready for use within a few hours after installed.

Tanks and Reservoirs

Genasco Vulcanite Acid Proof Mastic forms a leak proof lining for concrete, metal and wooden tanks designed to carry strong solutions of acids at a wide range of temperatures.

Pipes and Pipe Coatings

Pipes made or lined with Genasco Vulcanite Mastic are adapted for acid conveyor systems in chemical plants and other industries.

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In the Genasco line are high grade motor oils, mineral spirits and base oils for the paint industry, reagents for flotation of metallic and other ores.

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Germany's Foreign Trade in Heavy Chemicals, Fertilizers, Dyestuffs, Colors and Pharmaceutical Chemicals in 1920.

Germany's exports of commodities in the various industries in the general group of chemicals amounted in value ta 8,958,122,000 marks. A comparison of the exports and imports, in quantities, is given in the following table, together with the values of the exports. The export values of the several tabulated groups were:—A, 4,241,208,000 marks; B, 3,682,683,000 marks; C, 45,966,000 marks; D, 217,608,000 marks; E, 4,810,000 marks; F, 629,763,000 marks. Exports of explosives amounted to 136,054,000 marks.

The figures for export values represent those at the point of shipment, plus the cost of transportation and insurance and all other costs up to the time that the goods left the German dominions:—

Group A—Chemical Raw Materials, Acids, Salts and Other Compounds of Chemical Elements, Etc.

	100 kilos Imports.	100 kilos Exports.	Export values, 1,000 marks.
Mercury and mercury alloys	4,083	42	633
Alkali metals, arsenic and other metals	2,448	567	1,372
Bromine, bromides, bromoform, iodine, iodides	20	8,687	69,369
Iodine	23,710	.....	.....
Phosphorus, white and red	203	1,076	3,357
Sulphur, spence-metal	235,881	3,204	1,409
Ammonia (gas) liquor, aqua ammonia	256	128,459	43,327
Hydrochloric acid, nitro-hydrochloric acid	32,522	107,155	13,703
Sulphuric acid, sulphuric anhydride	190,840	69,389	10,897
Nitric acid	804	23,437	13,117
Boric acid, borax	39,439	1,382	3,201
Oxalic acid, potassium oxalate, acetic acid, glacial acetic acid	853	.....	.....
Lactic acid, lactates, tartaric acid, citric acid	290	19,739	70,124
Salt, brine, mother liquor, boiler scale, rock salt, potassium salts, other abraum salts	16,034	12,533,174	438,908
Carnallite with at least 9% and less than 12% K_2O	205	2	.....
Manure salt, inclusive of potash, with 38% H_2O	98	4,952,298	797,564
Saline deposits—Strassfurt abraum salts	3	186,602	10,109
Thornstone	153	.....	.....
Calsbad, Marienbad, Vichy and other springs salts, natural and artificial	157	2,093	541
Barium chloride	9,201	12,182	4,448
Iodides	8.36	10,066	9,460
Bromides	19	8,687	69,369
Soda and soda boiler compounds	149,629	27,015	7,025
Ammonium carbonate	1,647	10,066	9,469
Soda, bicarbonate	12,303	.....	.....
Caustic soda, solid or liquid	141,303	98,223	138,095
Caustic potash, solid or liquid	1,879	.....	.....
Potash, burnt ashes	260	38,848	69,154
Crude potash	497	.....	.....
Bleaching powder, bleaching lye and other hypochlorites, barium peroxide, hydrogen peroxide	2,235	98,303	49,061
Potassium chlorate	297	22,528	21,148
Sodium sulphate and bisulphate	65,679	154,873	37,305
Potassium sulphate	156	.....	.....
Potassium phosphate	.....	29	117
Copper sulphate, mixed copper and iron sulphates	954	55,345	18,806
Iron sulphate, zinc sulphate	440	.....	.....
Ammonium, potassium, sodium, alum; artificial aluminum acetate, aluminum sulphate and sulphite; artificial cryolite; artificial alumina; purified bauxite	939	357,724	119,670
Chrome, iron and copper alums	442	6,591	6,978
Lead oxide (litharges)	166	7,118	7,492
Tin oxide, stannic acid	134	1,41	7,672
Ammonium nitrate, lead nitrate	27	60,328	40,581
Sodium nitrate	313,590	41,207	18,907
Potassium nitrate	4	46,468	41,532
Sodium chromate, bichromate	13,012	5,711	14,820
Potassium chromate, bichromate, chromium oxide, chromium hydroxide	1,132	.....	.....
Potassium manganate and permanganate	6,378	1,652	9,331
Sodium and potassium silicate	207	68,109	15,716
Potassium and sodium prussiates	36	15,394	32,153
Potassium and sodium cyanide	59	.....	.....
Calcium acetate and pyrolignate	1,957	10,834	15,442
Cream tartar, sodium tartrate, tartar emetic, and other antimony preparations	14,407	3,346	11,430
Magnesium carbonate, artificial	458	2,424	2,159
Strontium carbonate, artificial strontium chloride, strontium oxide	89	157	166
Zinc salts, zinc chloride	36	6,133	4,564
Calcium aluminum and silicon carbides, and other metallic carbides	71,032	32,659	14,926
Ammonium sulphate	1,423	260,935	126,657
Arsenous and arsenic acids and compounds	3,061	25,834	31,062
Epsom salt, calcium chloride, magnesium chloride, magnesium chloride liquor	2,574	326,514	55,133
Potassium chloride, potassium sulphate	.....	1,583,684	972,026
Ferrosilicon with a silicon content of 25% or over	125,061	.....	.....
Tannic acid, gallic acid	366	.....	.....
Gold chloride	3.7	519.4	2,275
Potassium-magnesium sulphate	125	.....	.....
Calcium nitrate, calcium cyanamids (air), and similar fertilizers	26,124	7,470	2,602
Calcium citrate	4,179	.....	.....
Nitrites	1,227	5,092	5,463
Salicylic acid and sodium salicylate, santoninic acid, benzoic acid, sodium benzoate, potassium sulphide and sodium sulphide, barium, lead, sodium, nickel compounds, pyridine, metalloids, acids, salts	40	227,657	433,678
Salammoniac	101	24,236	24,404
Sodium and potassium sulphites	1,727	.....	.....
Silver bromide, silver nitrate and other silver salts and compounds not mentioned specifically	23	32,557.6	38,722
Tin salts and other tin compounds not mentioned specifically	3	2,007	6,955
Barium, lead, sodium and nickel compounds, pyridine, pyridine bases, metalloids, acids, salts, not mentioned otherwise	55,461	.....	.....
Iron mordants, Schweinfurt green, ammonium, chromium, copper acetates and other acetates (acetone), acetone oil	1,539	.....	.....

Group B—Pigments and Dyestuffs

(Does not take into consideration small sales)

	100 kilos Imports.	100 kilos Exports.	Export values, 1,000 marks.
Cochineal	4	4	6
Animal kermes, cochineal carmine, sepia	5	6	232
Aniline and other coal-tar colors, sulphur dyes	195	178,469	2,054,313
Alizarin (red), alizarin dyes, various, from anthracene	11	33,251	330,273
Indigo, natural and artificial, indigo carmine, color lakes and new blue from indigo and indigo carmine	.....	66,711	541,949
Pure and mixed blue; color lakes and new blue from Berlin-blue; chrome green, zinc green	295	.....	.....
Ultramarine, color lakes and new blue from	134	5,689	10,520
Red lead	505	33,740	35,344
White lead, zinc white, lithopone	743	208,102	196,476
Baryta white	2,683	30,327	8,485
Zinc dust, gray zinc oxide, zinc gray, zinc ash	651	42,612	19,254
Zinc oxide, white	625	.....	.....
Zinc oxide, gray	1,279	.....	.....
Zinc dust, gray zinc oxide, zinc ash	.....	42,612	19,254
Cinnabar, red	.....	173	2,085
Dyewood extracts; also extracts from other vegetable dyestuffs	6,933	702	1,638
Chalk, white, washed, fine pulverized	61,759	55,581	2,956
Iron oxide, natural and artificial (also yellow ocher), burnt, etc	11,239	202,956	55,592
Lampblack, printer's black, copper plate black, dry, not prepared	1,923	12,636	13,911
Bronze (metallic) pigments	32.93	8,327	49,900
Chrome colors (exclusive of chrome green)	23	9,335	13,472
Pure or mixed blue, color lakes and new blue from Berlin blue, chrome green, zinc green, copper colors (exclusive of Schweinfurt green), and other pigments of the same types	126	62,757	92,011
Printing colors, variegated; casein colors, orchil extracts, chlorophyll and other colors not mentioned specifically	111	493	4,766
Paper printing colors from lampblack or copper plate blacks; book printing, copper plate blacks, dry, not specifically prepared	144	12,148	18,900
Lead, zinc, lithopone whites, iron oxide, red ocher ground in oil	232	762	1,062
Other prepared colors (oil, oil varnish, glycerin, etc., ground), colors not prepared in vesicles, etc	935	19,146	78,689
Colors in color and water color boxes; India inks	48	2,150	8,876
Inks, ink powders	10	8,390	9,781
Graphite, cast or prepared for small trade	94	98	20
Soapstone, cut, formed (tailor chalk)	7	1,461	474
Lead, color, carbon pencils; chalk, cut or molded	264	272,584	132,253

Group C—Varnishes, Lacquers, Cements

	100 kilos Imports.	100 kilos Exports.	Export values, 1,000 marks.
Oil varnishes, varnish salts, bird lime from thickened linseed oil	4,793	928	2,045
Alcohol varnishes, shellac cements	131	821	2,471
Lac varnish, lacquers, without alcohol; asphalt, couch, lacquer varnishes	2,330	17,551	36,499
Sealing wax, bottle wax	14	979	2,555
Oil cements (varnish cements) and other cements (exclusive of asbestos, mineral, shellac and wax cements)	589	5,055	2,424
Asbestos coating compositions, asbestos colors and cements	1	3	2

Group D—Ethers, Alcohols and Others Not Mentioned Specifically, Volatile Oils, Artificial Perfumes, Scents and Cosmetics

	100 kilos Imports.	100 kilos Exports.	Export values, 1,000 marks.
Other than ethyl ethers, also enanthic ether	283	.....	.....
Ethers of all sorts, fusel oils, amyl, butyl and propyl alcohols	1,312	2,333	15,641
Wood alcohol, crude	24,523	35	100
Wood alcohol, purified; acetone, purified; formaldehyde in solution	5,661	5,494	17,812
Acetaldehyde, paraldehyde	.....	209	981
Wood tar oil, rubber oil; animal oils	8228	77	104
Turpentine, pine needle oils; rosin spirit	40,892	587	1,365
Orange, lemon, bergamot and other citrus fruit oils; camphor, anise, juniper, rosemary and other volatile oils; menthol	7,089	1,291	44,623
Terpineol, vanillin, anethol and other similar substances used in preparing artificial perfumes	134	1,489	48,295
Aromatic fats, salves, pomades, oils (fatty and mineral)	171	722	3,201
Cologne, other ethereal and alcoholic scents and cosmetics; essences and waters; aromatic vinegar; ethereal and alcoholic hair, mouth and tooth preparations	265	.....	.....
Colognes	.....	1,654	8,829
Other ethereal and alcoholic scents and cosmetics; aromatic essences and waters; aromatic vinegar	.....	1,591	19,527
Powder, face paints, tooth powder, fragrant; tooth soaps and other cosmetics	65.18	.....	.....
Ethereal and alcoholic hair, mouth and tooth washes	.....	2,733	9,444
Waters, aromatic, not containing ether or alcohol; powders, face paints, tooth powder, fragrant; tooth soap and other scents and cosmetics not mentioned specifically	.....	9,569	47,685

Group E—Artificial Fertilizers

	100 kilos Imports.	100 kilos Exports.	Export values, 1,000 marks.
Guano, artificial; animal, sinew flour, ground manures	2,794	180	6
Guano, natural	87	.....	.....
Bone meal	23,304	5,414	510
Thomas phosphate meal	401,448	48,780	2,494
Superphosphate, etc	252,390	10,396	1,800

Group F—Chemical and Pharmaceutical Products

	100 kilos Imports.	100 kilos Exports.	Export values, 1,000 marks.
Albumen, dried, powdered, proteins, animal and vegetable	5,346	78	423
Casein and preparations from casein, not used for food; animal gluten protein	26,359	46	158
Crude glue (exclusive of gluten protein), elastic glue	1,390	6,500	12,892
Gelatin	998	1,534	10,624
Flakes, tinsel, capsules, wafers and other formed articles from gelatin not mixed with sugar	16	429	5,090
Wood creosote and peat-tar creosote	50	115	651
Compressed gases (liquid carbonic acid gas)	1,864	33,733	10,056
Alkaloids, alkaloid salts and compounds	132.99	747.31	145,644
Collodion, celloidin	.....	270	706
Chloroform, chloral hydrate	1	735	4,700
Oak, pine and chestnut wood extracts	24,384	3,879	1,272
Quebracho extracts	74,172	2,361	1,367
Sumac extracts, pure	1,123	.....	.....
Other tannin extracts	5,993	.....	.....
Extract of licorice, pectoral cakes, paste	2,275	1,086	3,214
Tannins, gallic acid, nut gall, sumac extracts, and other tannin extracts (exclusive of oak, pine, chestnut and quebracho extracts)	.....	9,483	11,408
Balsam, artificial; extracts, solutions, etc., not aromatic, for industrial or medicinal use, without dyewood, tannin extracts	86	1,800	7,754
Prepared medicinals and other pharmaceutical products, not mentioned otherwise, patent medicines	613.41	10,487	191,650
Patent medicines, prepared drugs	1,372.9	.....	.....
Chemical products, not otherwise mentioned—medicinals	191	2,846	90,072

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Sodium Fluoride, 96/8%
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Sodium Bromide, USP, Powder and Crystals
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CHEMISTS MUST SPREAD THE TRUTH OF THE IMPORTANCE OF SCIENCE THROUGHOUT WORLD

President of Chemical Foundation Declares That Responsibility for Safeguarding Nations Rests Upon Men of Science

That the cause and the chief lesson of the world war was most truly appreciated by Pasteur when he said:—"Science is the soul of the prosperity of nations and the living source of all progress—what really leads us forward are a few scientific discoveries and their application," was pointed out by Francis P. Garvan, president of the Chemical Foundation, at last week's meeting of the American Chemical Society. He appealed to the chemists of this country to accept the responsibility for teaching the people of America this truth as applied to the critical situation of the nation.

"The people of the United States are ninety-nine per cent. right at heart and appreciative," he declared. "So are the people of England and of Canada. Their appreciation of chemistry must no longer be deferred in the terminology of the propaganda of foreign hostile interests, seeking only their destruction. Your work must never again be allowed to cease in the laboratory."

After describing the discovery by the English chemist, Perkin, of the basis for the subsequent development of the coal tar industry and practically all organic chemistry, Mr. Garvan told how "the German, Hoffman, put this discovery in his bag and took it back to Germany," where "almost instantly he was able to make German industry, German universities and the German Government realize the importance of that bag."

"Immediate success led to a greater appreciation of an ever closer alliance of science and industry and an ever closer alliance between science, industry and the militaristic state," he declared. "This triple alliance changed Germany from an agriculture nation into the second industrial nation of the world, but in that change it brought about a succession of periods of overproduction, each one in turn overcome by greater consolidation, by ever increasing corruption in methods of bribery, espionage, dumping, et cetera, and by ever intensified state aid and direction.

"In 1914 we find the German people demanding the control of the markets of the world. We find their hearts corrupted by the methods which they had felt it necessary to adopt to overcome their successive periods of overproduction. We find them swollen with pride at their successes and ready to inspire or acquiesce in the hazards of battle. This triple alliance of industry, science and the militaristic state—and the evidence is overwhelming that each was equally guilty—considered that it would be quicker and cheaper to attempt to gain this end by victory on the field of battle, rather than to find increased markets for a surplus production by further intensified methods of peaceful penetration.

"The same chemical research with its well-served industry had in turn well served the militaristic state. As chemical progress indexed commercial progress, so explosives had kept pace with dyes and pharmaceuticals, the ammunition factories of her peaceful penetration were the arsenals of her munitions preparation.

"In the fall of 1913 the chemical application of Perkins' discovery was able to notify the war lord that Germany was ready; that she controlled 95 per cent. of the organic chemistry of the world upon which industry and the production of war gases and explosives were dependent; that she had crushed out every incipient effort toward the development of the Perkins discoveries by every other nation and was able to deal the dependent industries of those nations tremendous blows, and that now by the final triumph in the development of the Haber processes of making nitrates from the air, her agricultural production and munition production were safe from the menace of any blockade. You know the rest.

How the Propaganda Was Spread

"All this German chemists accomplished, not alone in their laboratories, but in the forum of public opinion. They had educated and moulded thought in Germany until every man of whatever rank, in or out of industry, education or governmental service, realized the importance of chemistry in his life and in the life of his country. These chemists knew that the alliance of science and industry had increased the wealth of the world a thousandfold in the past hundred years. They knew that it was the life blood of industry, the safety of their state and the only sure foundation upon which to base the hope of the health of their children's children. And they had impressed upon the world the discouraging and withering idea that the Germans, and the Germans alone, were mentally equipped to lead in this great age of chemistry."

As an instance of the foresight of German chemical interests, Mr. Garvan told how "prior to 1908 German patent laws contained the so-called 'working' clause, by which your inventions, if patented in Germany, must be worked there within a certain period of time or they were thrown open to the German manufacturers and developers. Agitation was rife in this country that we should protect our future in like manner. But by 1908 Germany had decided that she had so far advanced in science that she no longer needed that clause to protect herself and that if enacted by the United States it would threaten her control of organic chemistry in the world and destroy the purposes upon which she was bent.

"The president of the Bayer Chemical Co., at that time the head representative of this march for world control in America, although on paper an American citizen, acting under instructions from the consolidated government and chemical industries of Berlin, went to Commissioner Moore at the Patent Office in Washington. It was the beginning of one one of Washington's hot summers. With fulsome praise of his outstanding position in the patent world and the great inventive genius of this country needing protection, he reproached him for not representing the United States at the International Patent Conference about to be held in Stockholm. Mr. Moore responded that the unenlightened Congress had not given him any funds with which to go.

Commissioner Moore then went on his vacation. Mr. Muurling, the predecessor of Schweitzer and Metz as the American voice of Germany's chemical interests, went to Robert Bacon, then acting Secretary of State, drew the picture of the United States unrepresented at that great conference, pointed out to him that he had a fund which he could apply to any purpose which he deemed for the best interests of the country in its foreign relations, with the result that Mr. Moore was recalled from his vacation and sent abroad, but with him went a letter to the German chemists, telling them that the American representative of the German dream had done his part and that they must now do theirs.

"The result was that Moore was induced to go from Stockholm to Berlin, where he was feted and dined by the Kaiser himself, and returned to negotiate the treaty of 1909 with Germany, by which Germany was released from working her chemical patents in this country and by which the last hope of development of organic chemistry in this country was crushed. No more loyal Americans ever lived than Robert Bacon and Commissioner Moore, but they were unconscious tools in the hands of the German chemists, the handmaidens of the German dream of world control. And you were to blame, because you had not instructed your government officials up to a realization of the importance of chemistry and its guidance and protection by the State.

German Government Fostering Same Idea

"In Germany today industrial reorganization for world domination, first in the peaceful arts and then in war, is proceeding mightily under the sympathetic eye and fostering care of a government which differs in no important particular, so far as the world outside of Germany is concerned, from the government of the Hohenzollerns," said Mr. Garvan. "The German purpose stands forth as clearly as a mountain in the sunlight. First, reconquer in industry and commerce, then we Germans will see. Their secret documents prove it. The heart of the news that comes out of Germany proves it. They prove it out of their own mouths.

"Moles in the darkness, German agents in America are once more plotting against our security, our prosperity and against the health of our very children. The German design to render the United States important is being prosecuted today with more subtle viciousness than marked the intrigue of Von Bernstorff, Albert and Schweitzer in the years before we entered the war.

"The times are too tense with danger for passive tactics. On one side we have the same old crowd of German agents masquerading as good Americans. On another side we perceive American citizens supporting the German intrigues. In Congress we hear and stand aghast at the ignorant and malicious outburst of certain legislators, unmindful of their country's welfare. Folly drips from their mouths. Stupid suspicion of the motives of honest men and appalling ignorance of the times mark their astounding incapacity. There are some who, like Jacob of old, have set themselves to steal the birthright of chemical independence from the American nation. They may disguise for a time the hairy hands of the German dye monopoly that controls them, but in the end the people will know them for what they are. Their voices are the voices of elected Representatives and Senators in the American Congress, but the hands that manipulate them are the hands of the German dye trust, the most powerful monopoly ever formed by man, the Interessen Gemeinschaft, the 'I. G.'

"If in the reaction from war and in the general distaste for discussing matters pertaining to war we permit ourselves again to be lulled and numbed by German propaganda, if we look on indifferently while a few demagogues in Congress and a few short-sighted, selfish men in business life play the German game, if we allow Germany to stifle an American industry that would within a very few years make the United States absolutely safe, then, I say, it will have been through your neglect and temerity and failure to realize that it is your responsibility not only to search the truth but to preach it.

Chemists Must Do Their Part

"Your responsibility today is the same as it was during all these years of neglect, only intensified as it must be by your consciousness of the results of that neglect. You have listened without apparent protest, contenting yourselves with resolutions and telegrams to swell the wastepaper baskets of Congress, to the German lie that there was a 'dye monopoly' in this country or that such a monopoly would result from the enactment of a selective embargo, when you knew that the development of dye industry is synonomus with the development of education in organic chemistry and that no monopoly in education is possible without the compulsory partnership of industry, university and government such as exists in Germany (a monopoly which never worries those tools of German propaganda).

"Did it not bring to your minds the lessons of the war when you saw the importing representative of the German 'I. G.' stand on the floor of the House of Representatives, flanked by fifteen of the seventeen Congressmen who voted against the declaration of war, leading the cheering when the first great unsuccessful test came as to whether American chemists should be given a chance to catch up their neglect of forty years and atone for it by leading this country through the development of organic chemistry into the realms of intensified national industrial progress, sweet security to home and child and blessed advance in the medical service of humanity? Do you not feel that the voices of two German importing firms were louder in protest and more persistent in their appeal for Germany than the voices of your fifteen thousand members for America's lessons of the war?

"Again I repeat, Herman A. Metz stood upon the floor of the House as that vote was announced and shouted to a gallery of American citizens, 'I've got you licked.' And when he screamed in triumphed he mean, 'I, the representative of the Interessen Gemeinschaft, the "I. G.," the combination of German government and German chemical industries; I've licked the advice of your General Pershing, I've licked the advice of your Secretary of War, I've licked the advice of your Secretary of Navy, I've licked your President, I've licked your administration, I've licked your thirty-million dollar investment in your colleges, I've licked your chemistry in your high schools and your public schools, I've licked your research institutions and the future development of medicine in America.'"

Chemistry May End War

After outlining the development of the peace idea and the progress of war weapons up to the discovery of war gasses, Mr. Garvan said:—"These things hit at the heart of imagination, surveying what creative chemistry has already done in war in its first few experimental steps, we stand back impressed as never before in the whole history of war tools. We are bound by sheer intelligence to comprehend that chemical science 'has only begun to fight.' It has learned how to utilize, not very skilfully, a few gasses. It has not done anything beyond small scale experimenting with radio active forces. But the lessons of the great war were a tremendous impulse to the research chemist. The creative chemist is searching out among rare elements, such as radium, arguments against warfare that can no more be refuted than pigmy man can oppose the tornado or the earthquake or contend with Vesuvius. The strange stuff that illuminates the dials of your watches may be the very medium that will eventually produce the resistless force that will make fighting intolerable.

"Chemists are seeking through forces as yet imperfectly comprehended to turn man toward sanity. They are aiming at his imagination. Who will dare say they are pursuing a fruitless quest after the experience of the great war which began as a war of great steel projectiles and ended as a war of invisible energy? Hard-headed military men, usually slow to convince that weapons other than the traditional arms of their service must be learned and relied upon, join nowadays with chemists in an appeal to the public understanding which is little short of the striking appeal made by the imaginative story of Mr. Wells, for they realize that chemistry is merely on the brink of great things, and none see so clearly as they that chemistry aims to abolish war by making it desperately perilous to great nations as well as small, to governments as well as to the led peoples, to vainglorious politicians as well as to the obedient servants in uniform."

PRESENT STATUS OF DOMESTIC COAL TAR PRODUCTS INDUSTRY*

By C. R. DeLong

Chief Chemist, United States Tariff Commission

The 1920 Report of the Tariff Commission giving the detailed production of dyes and other coal-tar products was available for distribution early in July. Those who follow the development of the industry in detail have had about two months time to study the contents of this report, and it would be imposing on their good natures to undertake a detailed review of the progress in the production of coal-tar products from a purely statistical standpoint. It is likely, however, that there are chemists present who have not had the necessary time to follow the various developments in this industry, and I therefore believe it would not be amiss to review briefly the important steps in the establishment of the coal-tar chemical industry in the United States, beginning with 1917 when the Tariff Commission took its first census of dyes and coal-tar chemicals.

Progress of Industry Since 1917

During the period from 1917 to 1920, inclusive, the total production of finished coal-tar products increased from over 54,000,000 pounds, valued at $69,000,000 to approximately 113,000,000 pounds, valued at nearly $113,000,000. This represents approximately a doubling in the output during the last four years. During this period the output of dyes represented approximately 85 per cent of the total quantity of finished products, and therefore may be regarded as the backbone of the coal-tar products industry. The output of dyes has followed the general trend of the industry as a whole and reached in 1920 somewhat over 88,000,000 pounds valued at $85,000,000. There have been many remarkable and striking increases in the output of individual dyes during this period. Indigo, the most important dye and one which involves rather complicated processes of manufacture, may be cited as an example. This dye increased from an output of 275,000 pounds in 1917 to more than 18,000,000 pounds in 1920, which quantity was approximately double the pre-war importation. The average price of indigo produced in 1917 was $1.24 as against a price of 74 cents in 1920. The loss of the export market in indigo has resulted in keen competition between domestic manufacturers with a reduction in price to a minimum of around 40 cents a pound or nearly one-half the average price for 1920. Other examples of this kind might be cited.

The group of "vat dyes other than indigo," which are comparatively insignificant so far as quantity consumed is concerned,—pre-war imports amounted to only about 4 per cent of the total imports of dyes—has caused more discussion as to the sufficiency of the domestic industry than any other group of dyes. The output of this group has progressively increased from a little over 15,000 pounds in 1917 to 1,160,000 pounds in 1920 or 1.3 per cent. of the total domestic output. The increase in production of vat dyes, however, may be accounted for by a few dyes, especially Brom-Indigos, Indanthrene Blue, G. C. D., and Indanthrene Yellow. Therefore there still exists a certain lack of variety in this class. The early development of this class of dyes was hampered by several factors, among which may be mentioned the scarcity and difficulty of obtaining an adequate supply of anthracene, German control of patents until October 1917, the complicated chemical nature of the dyes which require complex manufacturing processes, and the relatively small consumption of this group of dyes. The progress during 1920 has demonstrated the ability of the American dye industry to produce this group of colors in commercial quantities. The raw material difficulties have been solved by an increased output of anthracene and the development on a commercial scale of synthetic anthraquinone. There only remains the manufacturing difficulties to be solved by the domestic industry, which it may be predicted with reasonable certainty will be overcome in the not distant future. Much of the research necessary for the vat dyes has been completed, but the installment on a commercial scale has been delayed because it has been deemed not wise to invest the necessary capital—which is large in proportion to the value of the dyes—in a period of uncertainty.

The development and output of other finished products may be briefly noted. Coal-tar medicinals doubled their output to 5,000,000 pounds in 1920; perfume materials increased from 19,000 pounds to nearly 100,000 pounds in 1920; while the production of sythetic resins from coal-tar products reached a total of 4,500,000 pounds in 1920. Flavors is the only group of coal-tar products that has shown a marked decrease in this period when they declined from 780,000 pounds in 1917 to 167,000 pounds in 1920; this, however, may be largely accounted for by saccharine.

Another important development which took place largely during 1920 was the increase in the output of synthetic tanning materials, which reached over 3,000,000 pounds in 1920 by four firms. This is a marked increase over 1919, when there was only one manufacturer of this product. With our rapidly decreasing domestic supply of natural tanning extracts, the leather industry may be assured that a domestic supply of these essential raw materials will be available from the coal-tar products industry.

Another example may be cited of the possibility of synthetic coal-tar products replacing those of natural origin. The high price of camphor during the war led to search for a substitute, with the result that trithenyl and tricresyl phosphates were introduced as substitutes for camphor in the manufacture of pyroxylin plastics. The fact that in the past Japan has enjoyed a complete monopoly of the world's supply of camphor is well known to all. It is extremely doubtful whether these two coal-tar products can replace camphor in pyroxylin plastics for all purposes. But these coal-tar products offer a means of overcoming to some degree the Japanese monopoly in camphor. From a national standpoint the development of these camphor substitutes cannot be overestimated.

With the knowledge of these recent developments in the application of coal-tar products before us we cannot help but

*Delivered at the New York meeting of the American Chemical Society before the Division of Dye Chemistry, September 9, 1921.

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Relation of Research to the Industry

At this point I wish to point out the role which research has played in the development of the domestic coal-tar industry. Information compiled by the Commission shows that between 10 and 11 per cent. of all of the employees are chemists or technically trained men. This is undoubtedly a larger percentage than will be found in any other industry. Of course all of these chemists are not engaged in research work.

The total expenditures for research work in the industry from 1917 to 1920 inclusive, have been in excess of $15,000,000, which figure is an underestimate of the actual amount spent. The achievements of the past few years must, in no small part, be attributed to this liberal research policy. It should be pointed out, however, that a large part of this sum was expended in attempting to rediscover processes already well known to German manufacturers and that a comparatively small proportion represents new discoveries of a fundamental nature. There have been new discoveries such as synthetic anthraquinone, but in the main these have been comparatively few.

A continuation of extensive research is necessary for the establishment of a competitive industry in the United States. It is a regrettable fact that there has been a tendency during the recent months to curtail research work. By following this policy manufacturers are endangering the future progress and in fact the very life of the domestic industry.

Export Trade in Dyes

There is apparently a somewhat exaggerated opinion of the competitive strength of the domestic dye industry based wholly on the exports of dyes, which has become widespread. Because of this somewhat general impression it may be well at this time to repeat many of the statements already published by the Tariff Commission.

If one should analyze the figures for exports of dyes up to January, 1921, without giving due consideration to other facts, only one conclusion would be possible, namely, that the domestic industry was well developed and capable of competing in the markets of the world. This is apparently what many people have done. But let us consider these export figures in connection with other existing facts. Germany, the world's pre-war source of dyes, was not able to resume operation in the world's markets during 1919 and 1920 notwithstanding the fact that the armistice had been signed. As the United States had developed her coal-tar products industry more rapidly than that of European countries other than Germany, it was comparatively easy for domestic manufacturese to sell dyes to China, Japan, India and other foreign markets in the total absence of competition. The Tariff Commission in its report for 1919 pointed out the fallacy of any deductions as to the strength of the domestic industry based solely on a consideration of export statistics, and that such deductions did not take into consideration the fact that the domestic industry was deficient in the group of vat and alizarin dyes.

During the early months of 1921 domestic exports of dyes declined at a rapid pace. During 1920 the maximum export of aniline dyes was $2,650,000 in March, as against only $306,000 in April, 1921. In other words, exports had declined to only 10 per cent. of the maximum shipped from the United States in 1920. This rapid decline has been attributed to the general business depression, and in part it is no doubt due to this cause. An examination of the import trade of the principal consuming countries reveals the fact that there are other influences which have caused the cutting off of domestic exports of dyes. The study of Japanese imports of dyes for the first three months of 1919, 1920 and 1921 shows that the imports coming from Germany increased from a little over 6,600 pounds in the first three months of 1919 to 72,500 pounds in 1920 and 432,000 pounds in 1921. This increase in the imports from Germany may be contrasted with a decrease in imports from the United States from 700,000 pounds in 1919 to 111,000 pounds in 1921, or only one-fourth the quantity imported from Germany during the same period. The imports into Japan from Switzerland show a decline similar to that from the United States. A similar situation exists in China's import trade in dyes. It is quite evident from these figures that the domestic industry cannot as yet compete with Germany in the world's markets.

Tariff Commission's Letter to the President

Undoubtedly the majority of those present are aware that the past work of the Tariff Commission in compiling the production of coal-tar chemicals was undertaken in conformity with a request of the President, to ascertain the necessary facts on which to base executive action in connection with the specific duties levied in the Act of September 8, 1916 on coal-tar products. You will recall that this act requires that unless by September 8 of this year 60 per cent. of the domestic consumption is being produced in this country the specific duties of 2½ cents per pound upon intermediates and 5 cents per pound on dyes and other finished products were no longer to apply. In the case that over 60 per cent of the domestic consumption was being produced in the United States the specific duties were to be reduced each year by 20 per cent, until they no longer applied. The census for 1920 shows that the domestic production was greatly in excess of 60 per cent. of the consumption. Under date of August 19 a communication was transmitted to the President pointing out these facts. A portion of the letter reads as follows:—

"The production of the articles provided for in Group II (coal-tar intermediates) of the Act referred to above, in the United States during the calendar year 1920, amounted to $85,291,686, whereas during the same period the imports of these articles had a value of only $751,448, or less than 1 per cent of the value of the American production. The production in the United States during 1920 of the articles provided for in Group III (dyes and other finished coal-tar chemicals) amounted to $112,165,865 in value whereas the imports of these articles during the same period amounted to $5,804,905, a little more than 5 per cent. of the American production. Furthermore, during 1920 exports of aniline dyes amounted to $22,450,480 and exports of "all other dyes" consisting in part of synthetic dyes of coal-tar origin amounted to $7,373,111. It is, therefore, clear that during 1920 the domestic production of the articles enumerated in Groups II and III was much in excess of 60 per cent of the domestic consumption. Although complete statistical evidence as to production is not available for any later period than the calendar year 1920, it is apparent that the importation of these products has not increased during 1921 to such an extent that at the present time less than 60 per cent. in value of the domestic consumption is supplied by domestic production. The facts, therefore, do not call for the issuance of a proclamation removing the specific duties under Section 501 of said Act."

It is quite evident that the domestic manufacturers have greatly exceeded the requirements specified in the Act of 1916. This is an accomplishment of considerable magnitude in such a short time and one that the domestic industries may well be proud of.

Future Plans of the Commision

Although the main reason for the Commission's activity in the coal-tar products industry have been fulfilled, we do not believe that the industry has reached the basis that would warrant discontinuing the census of dyes. As the industry is at the present time passing through one of the most critical stages in its development it seems desirable that an accurate and detailed account be kept of the rend of the industry during the next few years. This seems desirable, not only for the good that the industry will derive from accurate statistical information during this period—as we have reason to believe that the domestic manufacturers have come to value highly these reports—but, on the other hand, it also seems desirable from a legislative standpoint in order that the effect of whatever legislation is passed by Congress may be accurately reflected.

The Tariff Commission in its decision to continue this work seeks and requests the continued co-operation of each individual manufacturer of coal-tar products in the United States. We have tried to make each succeeding census show more clearly the exact status of the industry in order that Congress might have a correct conception of the status of the industry in connection with pending legislation and incidentally to make the report of maximum service to the industry as a whole. The Commission is always glad to receive suggestions as to methods by which these reports may be improved. In this connection in the preparation of the last census we adopted the uniform system of nomenclature, as recommended by a committee of the American Dye Institute and by the American Chemical Society. I understand that a report on this subject is to be published soon by the American Dye Institute. This standardization of the name intermediates and its general application through the industry is a step in the right direction. However, it is only a bare beginning toward a much more complicated field, which is in still greater need of some form of standardization or revision. I refer to the existing nomenclature of the dyes. The Commission in each succeeding census has found an increasing quantity of dyes which could not be identified by Schultz tables. The quantity of such dyes increased from 1,281,000 pounds in 1918 to 2,060,000 pounds in 1920. In addition to this, difficulty has been experienced in the classification of dyes on account of the great variety of names applying to dyes of the same constitution.. I believe that it would be time well spent for a committee of this division of the society in co-operation with the manufacturers of dyes to give this matter of standardization and revision of the classification of dyes serious consideration. I am sure that the Tariff Commission will be glad to co-operate and to aid in any way within its power in such an undertaking. Such a plan if carried through to completion would eliminate much of the mystery in the minds of consumers which surround the commerce in dyes. It would also go far towards gaining the confidence of the consumers and would demonstrate that the domestic dye industry is not to follow the pre-war methods of the Germans in the sale of dyes.

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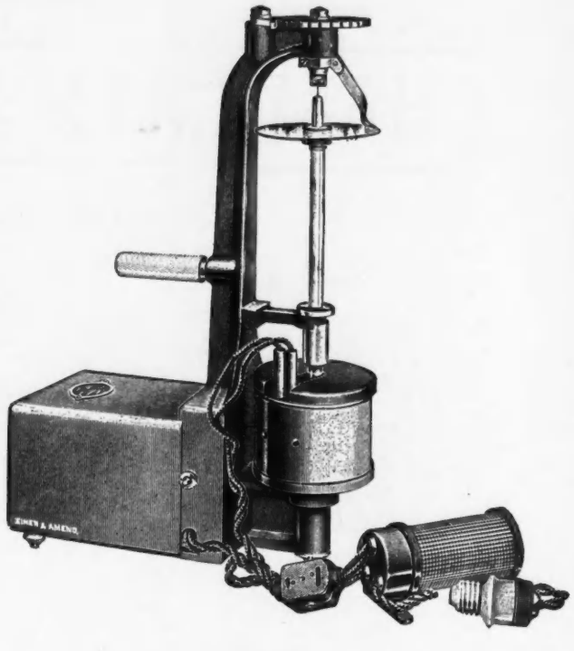

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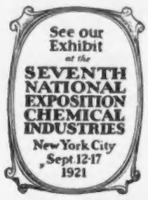

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